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! FINDPATTERNS on geneseqp:* allowing 0 mismatches
!       1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>

        AAR53571  ck: 135   len: 32    ! Aar53571 Spider venom calcium channel block
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        xCx{6}Cx{5}(E)CCx{4}Cx{4}Cx{5}
 1:                   DCGTIWHYCGTDQSECCEGWKCSRQLCKYVID

        AAR53576  ck: 3006  len: 33    ! Aar53576 Spider venom calcium channel block
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        xCx{6}Cx{5}(E)CCx{4}Cx{4}Cx{6}
 1:                   DCGTIWHYCGTDQSECCEGWKCSRQLCKYVIDW

        AAR55087  ck: 3541  len: 33    ! Aar55087 Tarantula spider venom peptide. 8/
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(E)CCx{4}Cx{6}Cx{6}
 1:                   CAEFQSKCKKDSECCGTLECSPTWKWCVYPSPF

        AAR70720  ck: 8841  len: 27    ! Aar70720 New omega Conotoxin peptide which
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}
 1:                     CKTYSKYCEADSECCTEQCVRSYCTLF

        AAY24108  ck: 5840  len: 34    ! Aay24108 Conopeptide Tx6.4. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{3}Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{7}
 1:                 WLECSVWFSHCTKDSECCSNSCDQTYCTLMPPDW

        AAY24131  ck: 8971  len: 27    ! Aay24131 Gamma-conopeptide TxVIIA. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}
 1:                     CGGYSTYCEVDSECCSDNCVRSYCTLF

        AAY24110  ck: 8841  len: 27    ! Aay24110 Conopeptide J101. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}
 1:                     CKTYSKYCEADSECCTEQCVRSYCTLF

        AAY24113  ck: 9467  len: 32    ! Aay24113 Conopeptide Gm6.7. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        xCx{6}Cx{4}(Q)CCx{4}Cx{6}Cx{4}
 1:                   ECRAWYAPCSPGAQCCSLLMCSKATSRCILAL

        AAY24115  ck: 8902  len: 27    ! Aay24115 Conopeptide Mr6.2. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}
 1:                     CGGWSTYCEVDEECCSESCVRSYCTLF

        AAY24107  ck: 385   len: 32    ! Aay24107 Conopeptide PnVIIA. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        xCx{6}Cx{4}(E)CCx{3}Cx{4}Cx{7}
 1:                   DCTSWFGRCTVNSECCSNSCDQTYCELYAFPS

        AAY24112  ck: 6937  len: 31    ! Aay24112 Conopeptide Tx6.5. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{4}(E)CCx{3}Cx{3}Cx{3}
 1:                   GMWGECKDGLTTCLAPSECCSEDCEGSCTMW

        AAY24111  ck: 4267  len: 34    ! Aay24111 Conopeptide Tx6.6. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{6}Cx{5}Cx{4}(E)CCx{3}Cx{3}Cx{6}
 1:                 DWWDDGCSVWGPCTYNAECCSGDCHETCIFGWEV

        AAY24114  ck: 2999  len: 29    ! Aay24114 Conopeptide Mr6.1. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{3}Cx{6}Cx{4}(E)CCx{3}Cx{3}Cx{3}
 1:                   NGQCEDVWMPCTSNWECCSLDCEMYCTQI

        AAY24127  ck: 6382  len: 26    ! Aay24127 Gamma-conopeptide Tx6.1. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{4}(E)CCx{3}Cx{4}Cx
 1:                     LCPDYTEPCSHAHECCSWNCYNGHCT

        AAY24130  ck: 385   len: 32    ! Aay24130 Gamma-conopeptide PvVIIA. 8/2003
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        xCx{6}Cx{4}(E)CCx{3}Cx{4}Cx{7}
 1:                   DCTSWFGRCTVNSECCSNSCDQTYCELYAFPS

        AAY24109  ck: 9205  len: 39    ! Aay24109 Conopeptide Tx6.9. 9/1999
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{6}Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{9}
 1:                 WWRWGGCMAWFGLCSRDSECCSNSCDVTRCELMPFPPDW

        AAY87532  ck: 2573  len: 24    ! Aay87532 Mature conotoxin peptide #7. 7/20
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{3}Cx
 1:                     CYDSGTSCNTGNQCCSGWCIFVCL

        AAY87530  ck: 2221  len: 24    ! Aay87530 Mature conotoxin peptide #6. 7/20
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{3}Cx
 1:                     CYDGGTSCDSGIQCCSGWCIFVCF

        AAU05930  ck: 2321  len: 24    ! Aau05930 Cone snail O-superfamily conotoxi
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{3}Cx
 1:                     CXDGGTSCNTGNQCCSGXCIFLCL

        AAU05972  ck: 7712  len: 27    ! Aau05972 Cone snail O-superfamily conotoxi
1                 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     XCIXSGDLCFRSDHIQCCSGKCAFVCL

        AAU06037  ck: 6262  len: 31    ! Aau06037 Cone snail O-superfamily conotoxi
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1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     NRLSRCIPSGDLCFPSDHIQCCSAKCAFVCL


AAU06044  ck: 5060  len: 26    ! Aau06044 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       CIXSGDLCFXSDHIQCCNAKCAFACL


AAU06047  ck: 6984  len: 31    ! Aau06047 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     NRLSWCIPTGDLCFPSDHIQCCSGKCTFVCM


AAU06048  ck: 8247  len: 27    ! Aau06048 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       XCIXTGDLCFXSDHIQCCSGKCTFVCM


AAU05953  ck: 9409  len: 32    ! Aau05953 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{4}Cx{6}Cx{8}(E)CCx{3}Cx{3}Cx
 1:                   RSKRCLVYGTPCDWLTIAGMECCSKKCFMMCW


AAU06033  ck: 6147  len: 31    ! Aau06033 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     NRLSRCIPSGDLCFPSDHIQCCNAKCAFVCL


AAU06038  ck: 5654  len: 26    ! Aau06038 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       CIXSGDLCFXSDHIQCCSAKCAFVCL


AAU06046  ck: 7563  len: 27    ! Aau06046 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       XCIXSGDLCFXSDHIQCCNAKCAFVCL


AAU06052  ck: 7832  len: 27    ! Aau06052 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       XCIXSGXLCPRSDHIQCCSAKCAFVCL


AAU06019  ck: 2540  len: 29    ! Aau06019 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{3}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                      LRWCIPRGDLCFPSDRIQCCSGKCTFVCM


AAU06036  ck: 7658  len: 27    ! Aau06036 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       XCIXSGDLCFXSDHIQCCSAKCAFVCL


AAU06039  ck: 5997  len: 31    ! Aau06039 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     NRLSRCIPSGDLCFPSDHIQCCNAECAFVCL


AAU06040  ck: 5824  len: 26    ! Aau06040 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       CIXSGDLCFXSDHIQCCNAXCAFVCL


AAU05922  ck: 1895  len: 24    ! Aau05922 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{3}Cx
 1:                        CXDGGTGCDSGNQCCSGXCIFACL


AAU05980  ck: 2589  len: 24    ! Aau05980 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{3}Cx
 1:                        CXDSGTSCNTGNQCCSGXCIFVCL


AAU06002  ck: 8003  len: 27    ! Aau06002 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       XCRVXGXICGMLFXAQCCDGXCFFVCM


AAU06020  ck: 8377  len: 27    ! Aau06020 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          xCx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       XCIXRGDLCFXSDRIQCCSGKCTFVCM


AAU05924  ck: 2357  len: 24    ! Aau05924 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{3}Cx
 1:                        CXDGGTGCDSGNQCCSGXCIFVCL


AAU05971  ck: 1909  len: 29    ! Aau05971 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{3}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                      LRWCIPSGDLCFRSDHIQCCSGKCAFVCL


AAU06045  ck: 6172  len: 31    ! Aau06045 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     NRLSWCIPSGDLCFPSDHIQCCNAKCAFVCL


AAU05932  ck: 4641  len: 25    ! Aau05932 Cone snail O-superfamily conotoxin

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx
 1:                        CXDSGTSCNTGNQCCSGXCIFVSCL
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AAU06034  ck: 5564  len: 26    ! Aau06034 Cone snail O-superfamily conotoxin
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                       CIXSGDLCFXSDHIQCCNAKCAFVCL


AAU06035  ck: 6287  len: 31    ! Aau06035 Cone snail O-superfamily conotoxin
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     NRLSWCIPSGDLCFPSDHIQCCSAKCAFVCL


AAU06043  ck: 5538  len: 31    ! Aau06043 Cone snail O-superfamily conotoxin
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{6}(Q)CCx{3}Cx{3}Cx
 1:                     NRLSRCIPSGDLCFPSDHIQCCNAKCAFACL


ADC21243  ck: 2431  len: 33    ! Adc21243 Selenocosmia huwena HWAP-I polypep
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        xCx{6}Cx{5}(E)CCx{4}Cx{6}Cx{4}
 1:                   ACKGVFDACTPGKNECCPNRVCSDKHKWCKWKL


ABB88893  ck: 4784  len: 30    ! Abb88893 Conus virgo I-superfamily conotoxi
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{6}
 1:                       CLHETSPCRRSFQCCHGICCFRRCSNSCRF


ABB88886  ck: 7477  len: 31    ! Abb88886 Conus emaciatus I-superfamily conc
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
 1:                       CRREGSSCRRSYQCCRKSCCIGECEFPCRWV


ABB88902  ck: 4050  len: 30    ! Abb88902 Conus figulinus I-superfamily conc
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{9}(E)CCx{3}Cx{3}Cx{2}
 1:                       CHHEGLPCTSGDGCCGMECCGGVCSSHCGN


ABB88833  ck: 4508  len: 38    ! Abb88833 Conus lynceus I-superfamily conotc
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{4}Cx{6}Cx{4}(E)CCx{3}Cx{5}Cx{9}
 1:                  NWSWCSGSGEGCDYHSECCGERCCIESMCIGDGVACWP


ABB88909  ck: 4452  len: 30    ! Abb88909 Conus striolatus I-superfamily con
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{9}(E)CCx{3}Cx{3}Cx{2}
 1:                       CHHEGLPCSSDDGCCGMECCNGVCSSSCGN


ABB88884  ck: 4784  len: 30    ! Abb88884 Conus emaciatus I-superfamily conc
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{6}
 1:                       CLHETSPCRRSFQCCHGICCFRRCSNSCRF


ABB88900  ck: 6547  len: 31    ! Abb88900 Conus figulinus I-superfamily conc
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
 1:                       CRAEGVRCEFDSQCCESECCMGSCANPCRIP


ABB88895  ck: 4856  len: 30    ! Abb88895 Conus virgo I-superfamily conotox
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{6}
 1:                       CLHETPPCRRSFQCCHGNCCFRRCSNSCRF


ABB88903  ck: 3846  len: 30    ! Abb88903 Conus figulinus I-superfamily con
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{9}(E)CCx{3}Cx{3}Cx{2}
 1:                       CHHEGLPCASDDGCCGMECCGGVCSSHCGN


ABB88896  ck: 4685  len: 30    ! Abb88896 Conus virgo I-superfamily conotox
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{6}
 1:                       CLHETSPCGRSFQCCHGICCFRRCSNSCRF


ABB88901  ck: 6985  len: 31    ! Abb88901 Conus figulinus I-superfamily con
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
 1:                       CRAEGVYCEYGSQCCLSQCCMASCANPCRHP


ABB88899  ck: 4017  len: 30    ! Abb88899 Conus figulinus I-superfamily con
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{9}(E)CCx{3}Cx{3}Cx{2}
 1:                       CHHEGLPCTSDDGCCGMECCGGVCSSHCGN


ABB88897  ck: 4835  len: 30    ! Abb88897 Conus virgo I-superfamily conotox
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                          Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{6}
 1:                       CLYETSPCRRSFQCCHGICCFRRCSNSCRF


AAO15120  ck: 7710  len: 35    ! Aao15120 Agriosphodrus dohrni (assassin bu
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{4}Cx{6}Cx{5}(Q)CCx{4}Cx{6}Cx{3}
 1:                   ADDDCLPRGSKCLGENKQCCKGTTCMFYANRCVGV


AAO15121  ck: 9883  len: 36    ! Aao15121 Isyndus obscurus (assassin bug) c
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{5}(Q)CCx{4}Cx{6}Cx{3}
 1:                   GADEDCLPRGSKCLGENKQCCEKTTCMFYANRCVGI


ABG99363  ck: 613   len: 36    ! Abg99363 Conus sp conotoxin-associated pep
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        x{5}Cx{6}Cx{4}(Q)CCx{3}Cx{5}Cx{6}
 1:                   XRXGSCTSXLATCTQDQQCCTDVCXKRDXCALXDDR


ABG99520  ck: 1912  len: 28    ! Abg99520 Conus sp conotoxin-associated pep
1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                        xCx{6}Cx{4}(Q)CCx{3}Cx{3}Cx{4}
 1:                     DCXSXLGSCIAXSQCCSXVCDXXCRLXR
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ABG99519 ck: 8445 len: 31 ! Abg99519 Conus sp conotoxin-associated prot

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{4}Cx{6}Cx{4}(Q)CCx{3}Cx{3}Cx{4}
1: LWSDCYSWLGSCIAPSQCCSEVCDYYCRLWR

ABG99674 ck: 567 len: 36 ! Abg99674 Conus sp conotoxin-associated pept

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{5}Cx{6}Cx{4}(Q)CCx{3}Cx{5}Cx{6}
1: WREGSCTSWLATCTQDQQCCTDVCYKRDYCALWDDR

ABG99681 ck: 9467 len: 32 ! Abg99681 Conus sp conotoxin-associated pept

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{4}(Q)CCx{4}Cx{6}Cx{4}
1: ECRAWYAPCSPGAQCCSLLMCSKATSRCILAL

ABG99679 ck: 8960 len: 27 ! Abg99679 Conus sp conotoxin-associated pept

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}
1: CSSWAKYCEVDSECCSEQCVRSYCAMW

ABG99678 ck: 6025 len: 26 ! Abg99678 Conus sp conotoxin-associated pept

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{4}(E)CCx{3}Cx{4}Cx
1: LCPDYTEPCSHAHECCSWNCHNGHCT

ABG99676 ck: 8797 len: 39 ! Abg99676 Conus sp conotoxin-associated pept

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{6}Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{9}
1: WWRWGGCMAWFGKCSKDSECCSNSCDITRCELMRFPPDW

ABG99673 ck: 6848 len: 31 ! Abg99673 Conus sp conotoxin-associated pept

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{5}Cx{6}Cx{4}(E)CCx{3}Cx{3}Cx{3}
1: GMWGDCKDGLTTCFAPSECCSEDCEGSCTMW

ABG99689 ck: 1490 len: 28 ! Abg99689 Conus sp conotoxin-associated pept

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{4}(Q)CCx{3}Cx{3}Cx{4}
1: DCYSWLGSCIAPSQCCSEVCDYYCRLWR

ABB96715 ck: 9600 len: 31 ! Abb96715 Omega-conopeptide Bu6.2 generic to

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
1: CITXGTACKVXSQCCRGXCKNGRCTXSXSXX

ABB96883 ck: 8400 len: 27 ! Abb96883 Omega-conopeptide Ra6.2 toxin sequ

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{6}Cx
1: CNARNSGCSQHPQCCSGSCNKTAGVCL

ABB96798 ck: 9455 len: 31 ! Abb96798 Omega-conopeptide Vi6.1 generic to

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
1: CITLGTRCKVXSQCCRSSCKNGRCAXSXXXX

ABB96884 ck: 8653 len: 27 ! Abb96884 Omega-conopeptide Ra6.3 toxin sequ

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{6}Cx
1: CNARNSGCSQHPQCCSGSCNKTLGVCL

ABB96780 ck: 8749 len: 27 ! Abb96780 Omega-conopeptide Ra6.3 generic to

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{6}Cx
1: CNARNSGCSQHXQCCSGSCNKTLGVCL

ABB96882 ck: 8346 len: 27 ! Abb96882 Omega-conopeptide Ra6.1 toxin sequ

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{6}Cx
1: CNARNDGCSQHSQCCSGSCNKTAGVCL

ABB96820 ck: 8422 len: 31 ! Abb96820 Omega-conopeptide Bu6.2 toxin sequ

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
1: CITPGTRCKVPSQCCRGPCKNGRCTPSPSEW

ABB96899 ck: 7783 len: 31 ! Abb96899 Omega-conopeptide Vi6.1 toxin sequ

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{4}Cx{7}
1: CITLGTRCKVPSQCCRSSCKNGRCAPSPEEW

ABB96779 ck: 8496 len: 27 ! Abb96779 Omega-conopeptide Ra6.2 generic to

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{6}Cx
1: CNARNSGCSQHXQCCSGSCNKTAGVCL

ABB96778 ck: 8346 len: 27 ! Abb96778 Omega-conopeptide Ra6.1 toxin sequ

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(Q)CCx{3}Cx{6}Cx
1: CNARNDGCSQHSQCCSGSCNKTAGVCL

ADL11898 ck: 2431 len: 33 ! Adl11898 HWTX-I protein sequence. 5/2004

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{5}(E)CCx{4}Cx{6}Cx{4}
1: ACKGVFDACTPGKNECCPNRVCSDKHKWCKWKL

ADS31829 ck: 2431 len: 33 ! Ads31829 Selenocosmia huwena spider venom p

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{5}(E)CCx{4}Cx{6}Cx{4}
1: ACKGVFDACTPGKNECCPNRVCSDKHKWCKWKL

Databases searched:
EMBL, Release 8.0, Released on 4Apr2006, Formatted on 29Apr2006

Total finds: 82
Total length: 457,216,429

Total sequences: 2,589,679
CPU time: 08:01.25

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!!AA_SEQUENCE 1.0
ID   AAR53571 standard; peptide; 32 AA.
XX
AC   AAR53571;
XX
DT   25-MAR-2003  (revised)
DT   29-NOV-1994  (first entry)
XX
DE   Spider venom calcium channel blocking peptide AU-3.
XX
KW   Spider venom; calcium channel blocking protein; calcium-antagonist;
KW   angina; hypertension; cardiomyopathy; pesticide.
XX
OS   Heteropoda venatoria.
XX
PN   WO9410195-A1.
XX
PD   11-MAY-1994.
XX
PF   16-AUG-1993;   93WO-US007555.
XX
PR   30-OCT-1992;   92US-00970333.
XX
PA   (PFIZ ) PFIZER INC.
XX
PI   Kelbaugh PR,  Saccomano NA,  Volkmann RA;
XX
DR   WPI; 1994-167384/20.
XX
PT   Calcium channel-blocking polypeptide(s) from heteropoda venatoria venom -
PT   used to treat e.g. angina, hypertension, cardiomyopathies, etc. and for
PT   invertebrate pest control.
XX
PS   Claim 5; Page 19; 31pp; English.
XX
CC   The peptide is useful in blocking Ca channels in cells, such as cells in
CC   the nervous system of a mammal, in the treatment of Ca channel-mediated
CC   diseases and conditions (e.g. angina, hypertnesion, cardiomyopathy,
CC   supraventricular arrhythmias, esophogeal achalasia, premature labor and
CC   Raynaud's disease. The peptides are obtained from the spider through the
CC   process of milking by electrical stimulation. (Updated on 25-MAR-2003 to
CC   correct PN field.)
XX
SQ   Sequence 32 AA;

 AAR53571  Length: 32  February 20, 2007 16:53  Type: P  Check: 135  ..

       1  DCGTIWHYCG TDQSECCEGW KCSRQLCKYV ID

!!AA_SEQUENCE 1.0
ID   AAR53576 standard; peptide; 33 AA.
XX
AC   AAR53576;
XX
DT   25-MAR-2003  (revised)
DT   29-NOV-1994  (first entry)
XX
DE   Spider venom calcium channel blocking peptide KJ-5.
XX
KW   Spider venom; calcium channel blocking protein; calcium-antagonist;
KW   angina; hypertension; cardiomyopathy; pesticide.
XX
OS   Heteropoda venatoria.
XX
PN   WO9410195-A1.
XX
PD   11-MAY-1994.
XX
PF   16-AUG-1993;   93WO-US007555.
XX
PR   30-OCT-1992;   92US-00970333.
XX
PA   (PFIZ ) PFIZER INC.
XX
PI   Kelbaugh PR,  Saccomano NA,  Volkmann RA;
XX
DR   WPI; 1994-167384/20.
XX
PT   Calcium channel-blocking polypeptide(s) from heteropoda venatoria venom -
PT   used to treat e.g. angina, hypertension, cardiomyopathies, etc. and for
PT   invertebrate pest control.
XX
PS   Claim 25; Page 22; 31pp; English.
XX
CC   The peptide is useful in blocking Ca channels in cells, such as cells in
CC   the nervous system of a mammal, in the treatment of Ca channel-mediated
CC   diseases and conditions (e.g. angina, hypertnesion, cardiomyopathy,
CC   supraventricular arrhythmias, esophogeal achalasia, premature labor and
CC   Raynaud's disease. The peptides are obtained from the spider through the
CC   process of milking by electrical stimulation. (Updated on 25-MAR-2003 to
CC   correct PN field.)
XX
SQ   Sequence 33 AA;

AAR53576  Length: 33  February 20, 2007 16:53  Type: P  Check: 3006  ..

       1  DCGTIWHYCG TDQSECCEGW KCSRQLCKYV IDW

!!AA_SEQUENCE 1.0
ID   AAR55087 standard; peptide; 33 AA.
XX
AC   AAR55087;
XX
DT   27-AUG-2003  (revised)
DT   25-MAR-2003  (revised)
DT   31-OCT-1994  (first entry)
XX
DE   Tarantula spider venom peptide.
XX
KW   Calcium channel blocker; invertebrate pest control; angina; hypertension;
KW   cardiomyopathies; supraventricular arrhythmices; oesophageal achalasia;
KW   premature labour; Raynaud's disease; physiology.
XX
OS   Theraphosidae.
XX
PN   WO9410196-A1.
XX
PD   11-MAY-1994.
XX
PF   28-SEP-1993;   93WO-US009069.
XX
PR   03-NOV-1992;   92US-00973323.
XX
PA   (PFIZ ) PFIZER INC.
PA   (NPSP-) NPS PHARM INC.
XX
PI   Nason DM,  Phillips D,  Saccomano NA,  Volkmann RA;
XX
DR   WPI; 1994-167385/20.
XX
PT   Calcium channel blocking polypeptide(s) from spider venom - useful in the
PT   control of invertebrate pests and in treatment of angina, hypertension
PT   etc. in mammals.
XX
PS   Claim 1; Page 19; 29pp; English.
XX
CC   The polypeptide is one of a number isolated from tarantula spider venom.
CC   The peptides are useful as calcium channel blockers in cells and are also
CC   useful in the contol of invertebrate pests and in the treatment of
CC   diseases and conditions mediated by calcium channel function. The
CC   peptides amy also be used in the study of the physiology of cells, e.g.
CC   nervous, muscular and cardiovascular cells. See also AAR55085-93.
CC   (Updated on 25-MAR-2003 to correct PN field.) (Updated on 27-AUG-2003 to
CC   correct OS field.)
XX
SQ   Sequence 33 AA;
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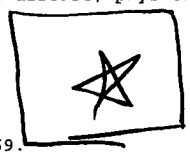

AAR55087 Length: 33 February 20, 2007 16:53 Type: P Check: 3541 ..

1 CAEFQSKCKK DSECCGTLEC SPTWKCYYP SPF

!!AA_SEQUENCE 1.0
ID AAR70720 standard; peptide; 27 AA.
XX
AC AAR70720;
XX
DT 25-MAR-2003 (revised)
DT 25-SEP-1995 (first entry)
XX
DE New omega Conotoxin peptide which binds a specific receptor.
XX
KW conotoxin; inhibitor; synaptic transmission; class alpha;
KW neuromuscular junction; nicotinic acetylcholine receptor.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 9
FT /note= "Gla (gamma-carboxyglutamate)"
FT Modified-site 13
FT /note= "Gla (gamma-carboxyglutamate)"
FT Modified-site 17
FT /note= "Gla (gamma-carboxyglutamate)"
FT Modified-site 27
FT /note= "Phe-NH2"
XX
PN WO9501436-A1.
XX
PD 12-JAN-1995.
XX
PF 27-JUN-1994; 94WO-US007194.
XX
PR 29-JUN-1993; 93US-00084848.
XX
PA (SALK) SALK INST BIOLOGICAL STUDIES.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Rivier JEF, Cruz LJ, Abogadie F, Hopkins CE;
PI Dykert J, Torres JL;
XX
DR WPI; 1995-061000/08.
XX
PT Conotoxin peptide(s) containing one or more cyclising di:sulphide bonds -
PT inhibit synaptic transmissions at neuromuscular junctions, useful in
PT binding assays and as pesticides.
XX
PS Claim 18; Page 51; 56pp; English.
XX
CC This conotoxin peptide may be a member of the known class of omega-
CC conotoxins. This class of conotoxins target and block the presynaptice
CC neuronal calcium ion channels. The conotoxin peptides are useful as
CC pesticides, and many of them or closely related analogues are targeted to
CC specific insects or other pests. (Updated on 25-MAR-2003 to correct PN
CC field.) (Updated on 25-MAR-2003 to correct PI field.)
XX
SQ Sequence 27 AA;

AAR70720 Length: 27 February 20, 2007 16:53 Type: P Check: 8841 ..

1 CKTYSKYCEA DSECCTEQCV RSYCTLF

!!AA_SEQUENCE 1.0
ID AAY24108 standard; peptide; 34 AA.
XX
AC AAY24108;
XX
DT 13-SEP-1999 (first entry)
XX
DE Conopeptide Tx6.4.
XX
KW Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS Conus textile.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 1
FT /note= "optionally 6-bromo-Trp"
FT Modified-site 3
FT /note= "optionally gamma-carboxyglutamic acid"
FT Misc-difference 7
FT /note= "optionally 6-bromo-Trp"
FT Modified-site 16
FT /note= "optionally gamma-carboxyglutamic acid"
FT Modified-site 31
FT /note= "optionally hydroxy-Pro"
FT Modified-site 32
FT /note= "optionally hydroxy-Pro"
FT Misc-difference 34
FT /note= "optionally 6-bromo-Trp"
XX
PN WO9930732-A1.
XX
PD 24-JUN-1999.
XX
PF 16-DEC-1998; 98WO-US026792.
XX
PR 16-DEC-1997; 97US-0069706P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (UYVR-) UNIV VRIJE.
PA (REGC) UNIV CALIFORNIA.
XX
PI Fainzilber M, Kits KS, Burlingame AL, Olivera BM, Walker C;
PI Walkins M, Shetty R, Cruz LJ, Imperial J, Colledge C;
XX
DR WPI; 1999-418708/35.
XX
PT Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT channels.
XX
PS Claim 20; Page 30; 61pp; English.
XX
CC The present invention describes gamma-carboxylated conopeptides derived
CC from cone snail venom. The gamma-conopeptides and their propeptides are
CC useful as agonists of neuronal pacemaker calcium channels. The
CC conopeptides are naturally available in minute amounts in the venom of
CC cone snails and their derivatives are synthetic. The peptides modulate
CC slow inward cation channels in vertebrates involved in syndromes of
CC clinical relevance, such as epileptic activity in hippocampus and
CC pacemaker potentials in heart muscle
XX
SQ Sequence 34 AA;

AAY24108 Length: 34 February 20, 2007 16:53 Type: P Check: 5840 ..

1 WLECSVWFSH CTKDSECCSN SCDQTYCTLM PPDW

!!AA_SEQUENCE 1.0
ID AAY24131 standard; peptide; 27 AA.
XX
AC AAY24131;
XX
DT 13-SEP-1999 (first entry)
XX
DE Gamma-conopeptide TxVIIA.
XX
KW Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS Conus textile.

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XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Disclosure; Page 55; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle. The present sequence represents a
CC   gamma-conopeptide
XX
SQ   Sequence 27 AA;

AAY24131  Length: 27  February 20, 2007 16:53  Type: P  Check: 8971  ..

       1  CGGYSTYCEV DSECCSDNCV RSYCTLF

!!AA_SEQUENCE 1.0
ID   AAY24110 standard; peptide; 27 AA.
XX
AC   AAY24110;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide J101.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus textile.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   9
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   13
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   17
FT                   /note= "optionally gamma-carboxyglutamic acid"
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 27 AA;

AAY24110  Length: 27  February 20, 2007 16:53  Type: P  Check: 8841  ..

       1  CKTYSKYCEA DSECCTEQCV RSYCTLF

!!AA_SEQUENCE 1.0
ID   AAY24113 standard; peptide; 32 AA.
XX
AC   AAY24113;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide Gm6.7.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus gloriamaris.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   1
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Misc-difference 5
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   8
FT                   /note= "optionally hydroxy-Pro"
FT   Modified-site   11
FT                   /note= "optionally hydroxy-Pro"
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
```

```
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 32 AA;

AAY24113  Length: 32  February 20, 2007 16:53  Type: P  Check: 9467  ..

       1  ECRAWYAPCS PGAQCCSLLM CSKATSRCIL AL

!!AA_SEQUENCE 1.0
ID   AAY24115 standard; peptide; 27 AA.
XX
AC   AAY24115;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide Mr6.2.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus marmoreus.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 4
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   9
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   12
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   13
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   17
FT                   /note= "optionally gamma-carboxyglutamic acid"
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 27 AA;

AAY24115  Length: 27  February 20, 2007 16:53  Type: P  Check: 8902  ..

       1  CGGWSTYCEV DEECCSESCV RSYCTLF

!!AA_SEQUENCE 1.0
ID   AAY24107 standard; peptide; 32 AA.
XX
AC   AAY24107;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide PnVIIA.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus pennaceus.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 5
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   14
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   26
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   31
FT                   /note= "optionally hydroxy-Pro"
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PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 32 AA;

 AAY24107  Length: 32  February 20, 2007 16:53  Type: P  Check: 385  ..

       1  DCTSWFGRCT VNSECCSNSC DQTYCELYAF PS

!!AA_SEQUENCE 1.0
ID   AAY24112 standard; peptide; 31 AA.
XX
AC   AAY24112;
XX
```

```
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide Tx6.5.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus textile.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 3
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   5
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   16
FT                   /note= "optionally hydroxy-Pro"
FT   Modified-site   18
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   22
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   25
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Misc-difference 31
FT                   /note= "optionally 6-bromo-Trp"
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 31 AA;

AAY24112  Length: 31  February 20, 2007 16:53  Type: P  Check: 6937  ..

       1  GMWGECKDGL TTCLAPSECC SEDCEGSCTM W

!!AA_SEQUENCE 1.0
ID   AAY24111 standard; peptide; 34 AA.
XX
AC   AAY24111;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide Tx6.6.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus textile.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 2
FT                   /note= "optionally 6-bromo-Trp"
FT   Misc-difference 3
FT                   /note= "optionally 6-bromo-Trp"
FT   Misc-difference 10
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   12
FT                   /note= "optionally hydroxy-Pro"
FT   Modified-site   18
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   26
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Misc-difference 32
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   33
FT                   /note= "optionally gamma-carboxyglutamic acid"
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 34 AA;

AAY24111  Length: 34  February 20, 2007 16:53  Type: P  Check: 4267  ..

       1  DWWDDGCSVW GPCTYNAECC SGDCHETCIF GWEV

!!AA_SEQUENCE 1.0
ID   AAY24114 standard; peptide; 29 AA.
XX
AC   AAY24114;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide Mr6.1.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus marmoreus.
```

```
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Modified-site   5
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Misc-difference 8
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   10
FT                   /note= "optionally hydroxy-Pro"
FT   Misc-difference 15
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   16
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   23
FT                   /note= "optionally gamma-carboxyglutamic acid"
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 29 AA;

AAY24114  Length: 29  February 20, 2007 16:53  Type: P  Check: 2999  ..

       1  NGQCEDVWMP CTSNWECCSL DCEMYCTQI

!!AA_SEQUENCE 1.0
ID   AAY24127 standard; peptide; 26 AA.
XX
AC   AAY24127;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Gamma-conopeptide Tx6.1.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus textile.
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Example 6; Page 8; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle. The present sequence represents a
CC   gamma-conopeptide
XX
SQ   Sequence 26 AA;

AAY24127  Length: 26  February 20, 2007 16:53  Type: P  Check: 6382  ..

       1  LCPDYTEPCS HAHECCSWNC YNGHCT

!!AA_SEQUENCE 1.0
ID   AAY24130 standard; peptide; 32 AA.
XX
AC   AAY24130;
XX
DT   27-AUG-2003  (revised)
DT   13-SEP-1999  (first entry)
XX
DE   Gamma-conopeptide PvVIIA.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus pennaceus.
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Disclosure; Page 55; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
```

```
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle. The present sequence represents a
CC   gamma-conopeptide. (Updated on 27-AUG-2003 to correct OS field.)
XX
SQ   Sequence 32 AA;

 AAY24130  Length: 32  February 20, 2007 16:53  Type: P  Check: 385  ..

       1  DCTSWFGRCT VNSECCSNSC DQTYCELYAF PS

!!AA_SEQUENCE 1.0
ID   AAY24109 standard; peptide; 39 AA.
XX
AC   AAY24109;
XX
DT   13-SEP-1999  (first entry)
XX
DE   Conopeptide Tx6.9.
XX
KW   Conopeptide; gamma-conopeptide; venom; cone snail; cation channel;
KW   epilepsy; pacemaker; heart muscle; neuronal pacemaker calcium channel.
XX
OS   Conus textile.
OS   Synthetic.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 1
FT                   /note= "optionally 6-bromo-Trp"
FT   Misc-difference 2
FT                   /note= "optionally 6-bromo-Trp"
FT   Misc-difference 4
FT                   /note= "optionally 6-bromo-Trp"
FT   Misc-difference 10
FT                   /note= "optionally 6-bromo-Trp"
FT   Modified-site   19
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   31
FT                   /note= "optionally gamma-carboxyglutamic acid"
FT   Modified-site   34
FT                   /note= "optionally hydroxy-Pro"
FT   Modified-site   36
FT                   /note= "optionally hydroxy-Pro"
FT   Modified-site   37
FT                   /note= "optionally hydroxy-Pro"
FT   Misc-difference 39
FT                   /note= "optionally 6-bromo-Trp"
XX
PN   WO9930732-A1.
XX
PD   24-JUN-1999.
XX
PF   16-DEC-1998;   98WO-US026792.
XX
PR   16-DEC-1997;   97US-0069706P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (UYVR-) UNIV VRIJE.
PA   (REGC ) UNIV CALIFORNIA.
XX
PI   Fainzilber M,  Kits KS,  Burlingame AL,  Olivera BM,  Walker C;
PI   Walkins M,  Shetty R,  Cruz LJ,  Imperial J,  Colledge C;
XX
DR   WPI; 1999-418708/35.
XX
PT   Gamma-carboxylated conopeptides used as, e.g. neuronal pacemaker calcium
PT   channels.
XX
PS   Claim 20; Page 30; 61pp; English.
XX
CC   The present invention describes gamma-carboxylated conopeptides derived
CC   from cone snail venom. The gamma-conopeptides and their propeptides are
CC   useful as agonists of neuronal pacemaker calcium channels. The
CC   conopeptides are naturally available in minute amounts in the venom of
CC   cone snails and their derivatives are synthetic. The peptides modulate
CC   slow inward cation channels in vertebrates involved in syndromes of
CC   clinical relevance, such as epileptic activity in hippocampus and
CC   pacemaker potentials in heart muscle
XX
SQ   Sequence 39 AA;

AAY24109  Length: 39  February 20, 2007 16:53  Type: P  Check: 9205  ..

       1  WWRWGGCMAW FGLCSRDSEC CSNSCDVTRC ELMPFPPDW

!!AA_SEQUENCE 1.0
ID   AAY87532 standard; peptide; 24 AA.
XX
AC   AAY87532;
XX
DT   18-JUL-2000  (first entry)
XX
DE   Mature conotoxin peptide #7.
XX
KW   Mature conotoxin; brocade cone shell; line cone shell; drug screening;
KW   neuronal inhibitor; muscle inhibitor.
XX
OS   Conus sp.
XX
PN   CN1237584-A.
XX
PD   08-DEC-1999.
XX
PF   30-APR-1999;   99CN-00106070.
XX
PR   30-APR-1999;   99CN-00106070.
XX
PA   (BIOL-) BIOLOGICAL ENG INST ACAD MILITARY MEDICI.
XX
PI   Lu B,  Huang P;
XX
DR   WPI; 2000-351193/31.
XX
PT   Conotoxin peptide from brocane cone shells useful as analgesic.
XX
PS   Claim 1A; Page 4; 20pp; Chinese.
XX
CC   The invention relates to 14 novel mature conotoxin peptides from marine
CC   snails (Conus species); conotoxin precursor proteins; and cDNAs encoding
CC   the conotoxin precursors. The mature peptide sequences were discovered by
CC   obtaining conotoxin cDNA sequences from mRNA from the brocade cone shell
CC   (Conus textile) or the line cone shell (Conus striatus). The cDNA
CC   sequences were used to determine the conotoxin precursor protein
CC   sequences, and the sequences of the mature conotoxin peptides were
CC   inferred from the precursor sequences. The mature conotoxin peptides can
CC   be obtained via chemical synthesis or by in vitro gene expression.
CC   Conotoxins inhibit the function of neurons and muscle cells. Certain .
CC   conotoxins interfere with synaptic transmission, while others act on
CC   muscle or at the neuromuscular junction. The 14 novel conotoxins have
CC   unique receptor specificity and affinity, so can be used as screening
CC   tools to identify new drugs. Conotoxin #11 (AAY87540) may be used for
CC   pain relief. Sequences AAY87420, AAY87522, AAY87524, AAY87526, AAY87528,
CC   AAY87530, AAY87532, AAY87534, AAY87536, AAY87538, AAY87540, AAY87542,
CC   AAY87544 and AAY87546 represent mature conotoxins #1-#14, respectively
XX
SQ   Sequence 24 AA;

AAY87532  Length: 24  February 20, 2007 16:53  Type: P  Check: 2573  ..

       1  CYDSGTSCNT GNQCCSGWCI FVCL

!!AA_SEQUENCE 1.0
ID   AAY87530 standard; peptide; 24 AA.
XX
AC   AAY87530;
```

XX
DT 18-JUL-2000 (first entry)
XX
DE Mature conotoxin peptide #6.
XX
KW Mature conotoxin; brocade cone shell; line cone shell; drug screening;
KW neuronal inhibitor; muscle inhibitor.
XX
OS Conus sp.
XX
PN CN1237584-A.
XX
PD 08-DEC-1999.
XX
PF 30-APR-1999; 99CN-00106070.
XX
PR 30-APR-1999; 99CN-00106070.
XX
PA (BIOL-) BIOLOGICAL ENG INST ACAD MILITARY MEDICI.
XX
PI Lu B, Huang P;
XX
DR WPI; 2000-351193/31.
XX
PT Conotoxin peptide from brocane cone shells useful as analgesic.
XX
PS Claim 1A; Page 4; 20pp; Chinese.
XX
CC The invention relates to 14 novel mature conotoxin peptides from marine
CC snails (Conus species); conotoxin precursor proteins; and cDNAs encoding
CC the conotoxin precursors. The mature peptide sequences were discovered by
CC obtaining conotoxin cDNA sequences from mRNA from the brocade cone shell
CC (Conus textile) or the line cone shell (Conus striatus). The cDNA
CC sequences were used to determine the conotoxin precursor protein
CC sequences, and the sequences of the mature conotoxin peptides were
CC inferred from the precursor sequences. The mature conotoxin peptides can
CC be obtained via chemical synthesis or by in vitro gene expression.
CC Conotoxins inhibit the function of neurons and muscle cells. Certain
CC conotoxins interfere with synaptic transmission, while others act on
CC muscle or at the neuromuscular junction. The 14 novel conotoxins have
CC unique receptor specificity and affinity, so can be used as screening
CC tools to identify new drugs. Conotoxin #11 (AAY87540) may be used for
CC pain relief. Sequences AAY87420, AAY87522, AAY87524, AAY87526, AAY87528,
CC AAY87530, AAY87532, AAY87534, AAY87536, AAY87538, AAY87540, AAY87542,
CC AAY87544 and AAY87546 represent mature conotoxins #1-#14, respectively
XX
SQ Sequence 24 AA;

AAY87530 Length: 24 February 20, 2007 16:53 Type: P Check: 2221 ..

1 CYDGGTSCDS GIQCCSGWCI FVCF

!!AA_SEQUENCE 1.0
ID AAU05930 standard; peptide; 24 AA.
XX
AC AAU05930;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Af6.10.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus ammiralis.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 60; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 24 AA;

AAU05930 Length: 24 February 20, 2007 16:53 Type: P Check: 2321 ..

1 CXDGGTSCNT GNQCCSGXCI FLCL

!!AA_SEQUENCE 1.0
ID AAU05972 standard; peptide; 27 AA.
XX
AC AAU05972;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Delta-Striatus 106.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus striatus.
XX

PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 71; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 27 AA;

AAU05972 Length: 27 February 20, 2007 16:53 Type: P Check: 7712 ..

1 XCIXSGDLCF RSDHIQCCSG KCAFVCL

!!AA_SEQUENCE 1.0
ID AAU06037 standard; peptide; 31 AA.
XX
AC AAU06037;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Cr6.5A.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS11006.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 89; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 31 AA;

AAU06037 Length: 31 February 20, 2007 16:53 Type: P Check: 6262 ..

1 NRLSRCIPSG DLCFPSDHIQ CCSAKCAFVC L

!!AA_SEQUENCE 1.0
ID AAU06044 standard; peptide; 26 AA.
XX
AC AAU06044;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Cr6.6B.

XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 91; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 26 AA;

AAU06044 Length: 26 February 20, 2007 16:53 Type: P Check: 5060 ..

1 CIXSGDLCFX SDHIQCCNAK CAFACL

!!AA_SEQUENCE 1.0
ID AAU06047 standard; peptide; 31 AA.
XX
AC AAU06047;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Cr6.7.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS11011.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 91; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 31 AA;

AAU06047 Length: 31 February 20, 2007 16:53 Type: P Check: 6984 ..

1 NRLSWCIPTG DLCFPSDHIQ CCSGKCTFVC M

```
!!AA_SEQUENCE 1.0
ID   AAU06048 standard; peptide; 27 AA.
XX
AC   AAU06048;
XX
DT   24-OCT-2001  (first entry)
XX
DE   Cone snail O-superfamily conotoxin, Cr6.7.
XX
KW   Cone snail; O-superfamily conotoxin; sodium channel;
KW   demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW   neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW   congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW   ischaemia; stroke; pain.
XX
OS   Conus circumcisus.
XX
PN   WO200149312-A2.
XX
PD   12-JUL-2001.
XX
PF   28-DEC-2000; 2000WO-US035431.
XX
PR   30-DEC-1999;   99US-0173754P.
PR   26-JUN-2000; 2000US-0214263P.
PR   20-JUL-2000; 2000US-0219440P.
PR   27-OCT-2000; 2000US-0243412P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM,  Cartier GE,  Watkins M,  Hillyard DR,  Mcintosh JM;
PI   Layer RT,  Jones RM;
XX
DR   WPI; 2001-418352/44.
XX
PT   New O-superfamily polypeptides useful for treating voltage gated ion
PT   channel disorders, including demyelinating diseases i.e. multiple
PT   sclerosis.
XX
PS   Claim 2; Page 92; 277pp; English.
XX
CC   The sequence is a cone snail O-superfamily conotoxin peptide. The
CC   peptides are useful for regulating the flow of sodium through sodium
CC   channels in an individual and the treatment or prevention of disorders
CC   associated with voltage gated ion channel disorders, including
CC   demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC   disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC   myelitis, progressive multifocal leukoencephalopathy, sub acute
CC   sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC   Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC   poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC   nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC   cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC   hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC   dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC   reversal of curare and other neuromuscular blocking drugs. The
CC   neurological disorder is a seizure, preferably one associated with
CC   epilepsy. The neurological disorder is a neurotoxic injury associated
CC   with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC   with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC   myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC   asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC   acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC   disorder is inflammation or a cardiovascular disorder. A conotoxin
CC   peptide of is useful to alleviate pain in a mammal in pain or about to be
CC   subjected to a pain causing event, and to treat disorders associated with
CC   radical depolarisation of excitable membranes by activating a KATP
CC   channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC   asthma
XX
SQ   Sequence 27 AA;

AAU06048  Length: 27  February 20, 2007 16:53  Type: P  Check: 8247  ..

       1  XCIXTGDLCF XSDHIQCCSG KCTFVCM

!!AA_SEQUENCE 1.0
ID   AAU05953 standard; peptide; 32 AA.
XX
AC   AAU05953;
XX
DT   24-OCT-2001  (first entry)
XX
DE   Cone snail O-superfamily conotoxin propeptide, O6.4.
XX
KW   Cone snail; O-superfamily conotoxin; sodium channel;
KW   demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW   neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW   congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW   ischaemia; stroke; pain.
XX
OS   Conus obscurus.
XX
PN   WO200149312-A2.
XX
PD   12-JUL-2001.
XX
PF   28-DEC-2000; 2000WO-US035431.
XX
PR   30-DEC-1999;   99US-0173754P.
PR   26-JUN-2000; 2000US-0214263P.
PR   20-JUL-2000; 2000US-0219440P.
PR   27-OCT-2000; 2000US-0243412P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM,  Cartier GE,  Watkins M,  Hillyard DR,  Mcintosh JM;
PI   Layer RT,  Jones RM;
XX
DR   WPI; 2001-418352/44.
DR   N-PSDB; AAS10964.
XX
PT   New O-superfamily polypeptides useful for treating voltage gated ion
PT   channel disorders, including demyelinating diseases i.e. multiple
PT   sclerosis.
XX
PS   Claim 15; Page 66; 277pp; English.
XX
CC   The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC   peptides are useful for regulating the flow of sodium through sodium
CC   channels in an individual and the treatment or prevention of disorders
CC   associated with voltage gated ion channel disorders, including
CC   demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC   disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC   myelitis, progressive multifocal leukoencephalopathy, sub acute
CC   sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC   Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC   poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC   nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC   cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC   hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC   dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC   reversal of curare and other neuromuscular blocking drugs. The
CC   neurological disorder is a seizure, preferably one associated with
CC   epilepsy. The neurological disorder is a neurotoxic injury associated
CC   with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC   with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC   myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC   asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC   acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC   disorder is inflammation or a cardiovascular disorder. A conotoxin
CC   peptide of is useful to alleviate pain in a mammal in pain or about to be
CC   subjected to a pain causing event, and to treat disorders associated with
```

CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 32 AA;

AAU05953 Length: 32 February 20, 2007 16:53 Type: P Check: 9409 ..

1 RSKRCLVYGT PCDWLTIAGM ECCSKKCFMM CW

!!AA_SEQUENCE 1.0
ID AAU06033 standard; peptide; 31 AA.
XX
AC AAU06033;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Cr6.6.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS11004.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 88; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 31 AA;

AAU06033 Length: 31 February 20, 2007 16:53 Type: P Check: 6147 ..

1 NRLSRCIPSG DLCFPSDHIQ CCNAKCAFVC L

!!AA_SEQUENCE 1.0
ID AAU06038 standard; peptide; 26 AA.
XX
AC AAU06038;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Cr6.5A.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 89; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with

CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 26 AA;

AAU06038 Length: 26 February 20, 2007 16:53 Type: P Check: 5654 ..

1 CIXSGDLCFX SDHIQCCSAK CAFVCL

!!AA_SEQUENCE 1.0
ID AAU06046 standard; peptide; 27 AA.
XX
AC AAU06046;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Cr6.6C.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 91; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 27 AA;

AAU06046 Length: 27 February 20, 2007 16:53 Type: P Check: 7563 ..

1 XCIXSGDLCF XSDHIQCCNA KCAFVCL

!!AA_SEQUENCE 1.0
ID AAU06052 standard; peptide; 27 AA.
XX
AC AAU06052;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Sm6.5.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus stercusmuscarum.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 93; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,

CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 27 AA;

AAU06052 Length: 27 February 20, 2007 16:53 Type: P Check: 7832 ..

1 XCIXSGXLCP RSDHIQCCSA KCAFVCL

!!AA_SEQUENCE 1.0
ID AAU06019 standard; peptide; 29 AA.
XX
AC AAU06019;
XX
DT 06-AUG-2003 (revised)
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Ac6.1.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus sp.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS10997.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 84; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma. (Updated on 06-AUG-2003 to correct OS field.)
XX
SQ Sequence 29 AA;

AAU06019 Length: 29 February 20, 2007 16:53 Type: P Check: 2540 ..

1 LRWCIPRGDL CFPSDRIQCC SGKCTFVCM

!!AA_SEQUENCE 1.0
ID AAU06036 standard; peptide; 27 AA.
XX
AC AAU06036;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Cr6.5.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX

PS Claim 2; Page 89; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 27 AA;

AAU06036 Length: 27 February 20, 2007 16:53 Type: P Check: 7658 ..

1 XCIXSGDLCF XSDHIQCCSA KCAFVCL

!!AA_SEQUENCE 1.0
ID AAU06039 standard; peptide; 31 AA.
XX
AC AAU06039;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Cr6.6A.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS11007.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 90; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 31 AA;

AAU06039 Length: 31 February 20, 2007 16:53 Type: P Check: 5997 ..

1 NRLSRCIPSG DLCFPSDHIQ CCNAECAFVC L

!!AA_SEQUENCE 1.0
ID AAU06040 standard; peptide; 26 AA.
XX
AC AAU06040;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Cr6.6A.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX

PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 90; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 26 AA;

AAU06040 Length: 26 February 20, 2007 16:53 Type: P Check: 5824 ..

1 CIXSGDLCFX SDHIQCCNAX CAFVCL

!!AA_SEQUENCE 1.0
ID AAU05922 standard; peptide; 24 AA.
XX
AC AAU05922;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Gm6.2.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus gloriamaris.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 58; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 24 AA;

AAU05922 Length: 24 February 20, 2007 16:53 Type: P Check: 1895 ..

1 CXDGGTGCDS GNQCCSGXCI FACL

!!AA_SEQUENCE 1.0
ID AAU05980 standard; peptide; 24 AA.
XX
AC AAU05980;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Tx6.8.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus textile.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX

PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Example 3; Page 73; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 24 AA;

AAU05980 Length: 24 February 20, 2007 16:53 Type: P Check: 2589 ..

1 CXDSGTSCNT GNQCCSGXCI FVCL

!!AA_SEQUENCE 1.0
ID AAU06002 standard; peptide; 27 AA.
XX
AC AAU06002;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Im6.1.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus imperialis.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 79; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 27 AA;

AAU06002 Length: 27 February 20, 2007 16:53 Type: P Check: 8003 ..

1 XCRVXGXICG MLFXAQCCDG XCFFVCM

!!AA_SEQUENCE 1.0
ID AAU06020 standard; peptide; 27 AA.
XX
AC AAU06020;
XX
DT 06-AUG-2003 (revised)
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Ac6.1.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.

XX
OS Conus sp.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 84; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma. (Updated on 06-AUG-2003 to correct OS field.)
XX
SQ Sequence 27 AA;

AAU06020 Length: 27 February 20, 2007 16:53 Type: P Check: 8377 ..

1 XCIXRGDLCF XSDRIQCCSG KCTFVCM

!!AA_SEQUENCE 1.0
ID AAU05924 standard; peptide; 24 AA.
XX
AC AAU05924;
XX
DT 06-AUG-2003 (revised)
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Da6.1.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus sp.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 59; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma. (Updated on 06-AUG-2003 to correct OS field.)
XX
SQ Sequence 24 AA;

AAU05924 Length: 24 February 20, 2007 16:53 Type: P Check: 2357 ..

1 CXDGGTGCDS GNQCCSGXCI FVCL

!!AA_SEQUENCE 1.0
ID AAU05971 standard; peptide; 29 AA.
XX
AC AAU05971;
XX

DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Delta-Striatus 106.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus striatus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS10973.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 71; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 29 AA;

AAU05971 Length: 29 February 20, 2007 16:53 Type: P Check: 1909 ..

1 LRWCIPSGDL CFRSDHIQCC SGKCAFVCL

!!AA_SEQUENCE 1.0
ID AAU06045 standard; peptide; 31 AA.
XX
AC AAU06045;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Cr6.6C.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS11010.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 91; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 31 AA;

AAU06045 Length: 31 February 20, 2007 16:53 Type: P Check: 6172 ..

1 NRLSWCIPSG DLCFPSDHIQ CCNAKCAFVC L

!!AA_SEQUENCE 1.0
ID AAU05932 standard; peptide; 25 AA.
XX
AC AAU05932;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Tx6.10.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus textile.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 61; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 25 AA;

AAU05932 Length: 25 February 20, 2007 16:53 Type: P Check: 4641 ..

1 CXDSGTSCNT GNQCCSGXCI FVSCL

!!AA_SEQUENCE 1.0
ID AAU06034 standard; peptide; 26 AA.
XX
AC AAU06034;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin, Cr6.6.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 2; Page 88; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin peptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The

CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 26 AA;

AAU06034 Length: 26 February 20, 2007 16:53 Type: P Check: 5564 ..

1 CIXSGDLCFX SDHIQCCNAK CAFVCL

!!AA_SEQUENCE 1.0
ID AAU06035 standard; peptide; 31 AA.
XX
AC AAU06035;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Cr6.5.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS11005.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 89; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC reversal of curare and other neuromuscular blocking drugs. The
CC neurological disorder is a seizure, preferably one associated with
CC epilepsy. The neurological disorder is a neurotoxic injury associated
CC with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC disorder is inflammation or a cardiovascular disorder. A conotoxin
CC peptide of is useful to alleviate pain in a mammal in pain or about to be
CC subjected to a pain causing event, and to treat disorders associated with
CC radical depolarisation of excitable membranes by activating a KATP
CC channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC asthma
XX
SQ Sequence 31 AA;

AAU06035 Length: 31 February 20, 2007 16:53 Type: P Check: 6287 ..

1 NRLSWCIPSG DLCFPSDHIQ CCSAKCAFVC L

!!AA_SEQUENCE 1.0
ID AAU06043 standard; peptide; 31 AA.
XX
AC AAU06043;
XX
DT 24-OCT-2001 (first entry)
XX
DE Cone snail O-superfamily conotoxin propeptide, Cr6.6B.
XX
KW Cone snail; O-superfamily conotoxin; sodium channel;
KW demyelinating disease; multiple sclerosis; Huntingdon's disease;
KW neuropathy; carpal tunnel syndrome; cardiovascular disorder;
KW congestive heart failure; cancer; immunosuppression; epilepsy; asthma;
KW ischaemia; stroke; pain.
XX
OS Conus circumcisus.
XX
PN WO200149312-A2.
XX
PD 12-JUL-2001.
XX
PF 28-DEC-2000; 2000WO-US035431.
XX
PR 30-DEC-1999; 99US-0173754P.
PR 26-JUN-2000; 2000US-0214263P.
PR 20-JUL-2000; 2000US-0219440P.
PR 27-OCT-2000; 2000US-0243412P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Cartier GE, Watkins M, Hillyard DR, Mcintosh JM;
PI Layer RT, Jones RM;
XX
DR WPI; 2001-418352/44.
DR N-PSDB; AAS11009.
XX
PT New O-superfamily polypeptides useful for treating voltage gated ion
PT channel disorders, including demyelinating diseases i.e. multiple
PT sclerosis.
XX
PS Claim 15; Page 90; 277pp; English.
XX
CC The sequence is a cone snail O-superfamily conotoxin propeptide. The
CC peptides are useful for regulating the flow of sodium through sodium
CC channels in an individual and the treatment or prevention of disorders
CC associated with voltage gated ion channel disorders, including
CC demyelinating diseases i.e. multiple sclerosis, optic neuromyelitis,
CC disseminated encephalomyelitis, adrenoleukodystrophy, acute transverse
CC myelitis, progressive multifocal leukoencephalopathy, sub acute
CC sclerosing panecephalomyelitis (SSPE), metachromatic leukodystrophy,
CC Pelizaeus-Merzbacher disease, spinal cord injury, botulinum toxin
CC poisoning, Huntington's, compression, entrapment neuropathies i.e. ulnar
CC nerve palsy, and carpal tunnel syndrome, cardiovascular disorders, i.e.
CC cardiac arrhythmias and congestive heart failure, reactive gliosis,

```
CC   hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC   dysfunction, neurotransmitter disorders (i.e. Eaton-Lambert syndrome) and
CC   reversal of curare and other neuromuscular blocking drugs. The
CC   neurological disorder is a seizure, preferably one associated with
CC   epilepsy. The neurological disorder is a neurotoxic injury associated
CC   with hypoxia, anoxia or ischaemia. The neurotoxic injury is associated
CC   with stroke, cerebrovascular accident, brain or spinal cord trauma,
CC   myocardial infarct, physical trauma, drownings, suffocation, perinatal
CC   asphyxia or hypoglycaemic events. The disorder is pain i.e. migraine,
CC   acute pain, persistent pain, neuropathic pain, nociceptive pain. The
CC   disorder is inflammation or a cardiovascular disorder. A conotoxin
CC   peptide of is useful to alleviate pain in a mammal in pain or about to be
CC   subjected to a pain causing event, and to treat disorders associated with
CC   radical depolarisation of excitable membranes by activating a KATP
CC   channel, the disorders include cardiac, ocular and cerebral ischaemia and
CC   asthma
XX
SQ   Sequence 31 AA;

AAU06043  Length: 31  February 20, 2007 16:53  Type: P  Check: 5538  ..

       1  NRLSRCIPSG DLCFPSDHIQ CCNAKCAFAC L

!!AA_SEQUENCE 1.0
ID   ADC21243 standard; peptide; 33 AA.
XX
AC   ADC21243;
XX
DT   18-DEC-2003  (first entry)
XX
DE   Selenocosmia huwena HWAP-I polypeptide.
XX
KW   Analgesic composition; HWAP-I; Chinese bird spider; reducing pain;
KW   joint pain; tooth pain; headache; chest pain; neurogenic pain;
KW   myofascial pain syndrome; chronic idiopathic pain syndrome;
KW   gynaecologic pain syndrome; recurrent abdominal pain; cancer.
XX
OS   Ornithoctonus huwena.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 23. .25
FT                   /note= "Encoded by AGTAAA"
XX
PN   US2003013647-A1.
XX
PD   16-JAN-2003.
XX
PF   13-FEB-2001; 2001US-00782704.
XX
PR   11-APR-2000; 2000CN-00104254.
XX
PA   (SONG/) SONG-PING L.
XX
PI   Song-Ping L;
XX
DR   WPI; 2001-657443/68.
DR   N-PSDB; ADC21244, ADC21245.
XX
PT   Reducing perceived pain in subject such as joint pain, headache, tooth
PT   pain, gynecological pain, involves administering purified HWAP-I
PT   polypeptide.
XX
PS   Claim 4; Page 2; 10pp; English.
XX
CC   The present invention relates to an analgesic composition comprising HWAP
CC   -I polypeptide of the Chinese bird spider, Selenocosmia huwena. The
CC   composition is useful for reducing perceived pain in a subject. It is
CC   particularly useful for the treatment of subjects with joint pain, tooth
CC   pain, headaches, chest pain, neurogenic pain, myofascial pain syndrome,
CC   chronic idiopathic pain syndrome, gynaecologic pain syndrome, recurrent
CC   abdominal pain in children, and pain in cancer patients. The composition
CC   has long term analgesic effects in a subject without causing any toxic
CC   side effects. The present sequence represents S. huwena HWAP-I
CC   polypeptide.
XX
SQ   Sequence 33 AA;

ADC21243  Length: 33  February 20, 2007 16:53  Type: P  Check: 2431  ..

       1  ACKGVFDACT PGKNECCPNR VCSDKHKWCK WKL

!!AA_SEQUENCE 1.0
ID   ABB88893 standard; peptide; 30 AA.
XX
AC   ABB88893;
XX
DT   22-MAY-2002  (first entry)
XX
DE   Conus virgo I-superfamily conotoxin type II peptide SEQ:465.
XX
KW   Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW   cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW   ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW   cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW   antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW   analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW   dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW   potassium agonist; curare antagonist.
XX
OS   Conus virgo.
XX
PN   WO200202590-A2.
XX
PD   10-JAN-2002.
XX
PF   29-JUN-2001; 2001WO-US020796.
XX
PR   30-JUN-2000; 2000US-0304166P.
PR   27-OCT-2000; 2000US-0243410P.
PR   08-NOV-2000; 2000US-0246581P.
PR   14-NOV-2000; 2000US-0247714P.
PR   29-JAN-2001; 2001US-0264256P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Walker CS,  Shetty R,  Jiminez EC,  Mcintosh JM,  Olivera BM;
PI   Watkins M,  Jones RM,  Shen GS;
XX
DR   WPI; 2002-171634/22.
XX
PT   Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT   the regulation of the flow of potassium through potassium channels in the
PT   treatment of e.g. multiple sclerosis.
XX
PS   Example 3; Page 83; 260pp; English.
XX
CC   The present invention describes substantially pure I-conotoxin peptides
CC   of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC   ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC   cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC   immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC   antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC   antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC   (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC   antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC   disseminated encephalomyelitis, optic neuromyelitis, progressive
CC   multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC   myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC   leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC   botulinum toxin poisoning, Huntington's chorea, compression and
CC   entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC   hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC   dysfunction, disorders resulting from the defects of neurotransmitter
CC   release and reversal of the actions curare and other neuromuscular
CC   blocking drugs. (I) can also be used to treat disorders associated with
```

CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 30 AA;

ABB88893 Length: 30 February 20, 2007 16:53 Type: P Check: 4784 ..

1 CLHETSPCRR SFQCCHGICC FRRCSNSCRF

!!AA_SEQUENCE 1.0
ID ABB88886 standard; peptide; 31 AA.
XX
AC ABB88886;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus emaciatus I-superfamily conotoxin type II peptide SEQ:458.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus emaciatus.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 83; 260pp; English.
XX
CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 31 AA;

ABB88886 Length: 31 February 20, 2007 16:53 Type: P Check: 7477 ..

1 CRREGSSCRR SYQCCRKSCC IGECEFPCRW V

!!AA_SEQUENCE 1.0
ID ABB88902 standard; peptide; 30 AA.
XX
AC ABB88902;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus figulinus I-superfamily conotoxin type II peptide SEQ:474.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus figulinus.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 83; 260pp; English.
XX
CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC antiarthritic, dermatological, tranquilliser and neuroleptic activities.

CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 30 AA;

ABB88902 Length: 30 February 20, 2007 16:53 Type: P Check: 4050 ..

1 CHHEGLPCTS GDGCCGMECC GGVCSSHCGN

!!AA_SEQUENCE 1.0
ID ABB88833 standard; peptide; 38 AA.
XX
AC ABB88833;
XX
DT 07-AUG-2003 (revised)
DT 22-MAY-2002 (first entry)
XX
DE Conus lynceus I-superfamily conotoxin type I peptide SEQ:405.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus sp.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 82; 260pp; English.
XX

CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention.
CC (Updated on 07-AUG-2003 to correct OS field.)
XX
SQ Sequence 38 AA;

ABB88833 Length: 38 February 20, 2007 16:53 Type: P Check: 4508 ..

1 NWSWCSGSGE GCDYHSECCG ERCCIESMCI GDGVACWP

!!AA_SEQUENCE 1.0
ID ABB88909 standard; peptide; 30 AA.
XX
AC ABB88909;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus striolatus I-superfamily conotoxin type II peptide SEQ:481.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus striolatus.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.

XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 83; 260pp; English.
XX
CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 30 AA;

ABB88909 Length: 30 February 20, 2007 16:53 Type: P Check: 4452 ..

1 CHHEGLPCSS DDGCCGMECC NGVCSSSCGN

!!AA_SEQUENCE 1.0
ID ABB88884 standard; peptide; 30 AA.
XX
AC ABB88884;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus emaciatus I-superfamily conotoxin type II peptide SEQ:456.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus emaciatus.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 83; 260pp; English.
XX
CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
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CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 30 AA;

ABB88884 Length: 30 February 20, 2007 16:53 Type: P Check: 4784 ..

1 CLHETSPCRR SFQCCHGICC FRRCSNSCRF

!!AA_SEQUENCE 1.0
ID ABB88900 standard; peptide; 31 AA.
XX
AC ABB88900;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus figulinus I-superfamily conotoxin type II peptide SEQ:472.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus figulinus.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.

PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
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XX
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XX
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CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
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CC dysfunction, disorders resulting from the defects of neurotransmitter
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CC radical depolarisation of excitable membranes, and disorders associated
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CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 31 AA;

ABB88900 Length: 31 February 20, 2007 16:53 Type: P Check: 6547 ..

1 CRAEGVRCEF DSQCCESECC MGSCANPCRI P

!!AA_SEQUENCE 1.0
ID ABB88895 standard; peptide; 30 AA.
XX
AC ABB88895;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus virgo I-superfamily conotoxin type II peptide SEQ:467.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus virgo.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 83; 260pp; English.
XX
CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
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CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 30 AA;

ABB88895 Length: 30 February 20, 2007 16:53 Type: P Check: 4856 ..

1 CLHETPPCRR SFQCCHGNCC FRRCSNSCRF

!!AA_SEQUENCE 1.0
ID ABB88903 standard; peptide; 30 AA.
XX
AC ABB88903;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus figulinus I-superfamily conotoxin type II peptide SEQ:475.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;

```
KW   dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW   potassium agonist; curare antagonist.
XX
OS   Conus figulinus.
XX
PN   WO200202590-A2.
XX
PD   10-JAN-2002.
XX
PF   29-JUN-2001; 2001WO-US020796.
XX
PR   30-JUN-2000; 2000US-0304166P.
PR   27-OCT-2000; 2000US-0243410P.
PR   08-NOV-2000; 2000US-0246581P.
PR   14-NOV-2000; 2000US-0247714P.
PR   29-JAN-2001; 2001US-0264256P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Walker CS,  Shetty R,  Jiminez EC,  Mcintosh JM,  Olivera BM;
PI   Watkins M,  Jones RM,  Shen GS;
XX
DR   WPI; 2002-171634/22.
XX
PT   Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT   the regulation of the flow of potassium through potassium channels in the
PT   treatment of e.g. multiple sclerosis.
XX
PS   Example 3; Page 83; 260pp; English.
XX
CC   The present invention describes substantially pure I-conotoxin peptides
CC   of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC   ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC   cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC   immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC   antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC   antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC   (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC   antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC   disseminated encephalomyelitis, optic neuromyelitis, progressive
CC   multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC   myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC   leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC   botulinum toxin poisoning, Huntington's chorea, compression and
CC   entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC   hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC   dysfunction, disorders resulting from the defects of neurotransmitter
CC   release and reversal of the actions curare and other neuromuscular
CC   blocking drugs. (I) can also be used to treat disorders associated with
CC   radical depolarisation of excitable membranes, and disorders associated
CC   with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC   are also useful for screening compounds that mimic the activity of an I-
CC   conotoxin. They are also useful for the treatment of autoimmune diseases,
CC   rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC   and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC   represent sequences used in the exemplification of the present invention
XX
SQ   Sequence 30 AA;

ABB88903  Length: 30  February 20, 2007 16:53  Type: P  Check: 3846  ..

       1  CHHEGLPCAS DDGCCGMECC GGVCSSHCGN

!!AA_SEQUENCE 1.0
ID   ABB88896 standard; peptide; 30 AA.
XX
AC   ABB88896;
XX
DT   22-MAY-2002  (first entry)
XX
DE   Conus virgo I-superfamily conotoxin type II peptide SEQ:468.
XX
KW   Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW   cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW   ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW   cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW   antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW   analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW   dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW   potassium agonist; curare antagonist.
XX
OS   Conus virgo.
XX
PN   WO200202590-A2.
XX
PD   10-JAN-2002.
XX
PF   29-JUN-2001; 2001WO-US020796.
XX
PR   30-JUN-2000; 2000US-0304166P.
PR   27-OCT-2000; 2000US-0243410P.
PR   08-NOV-2000; 2000US-0246581P.
PR   14-NOV-2000; 2000US-0247714P.
PR   29-JAN-2001; 2001US-0264256P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Walker CS,  Shetty R,  Jiminez EC,  Mcintosh JM,  Olivera BM;
PI   Watkins M,  Jones RM,  Shen GS;
XX
DR   WPI; 2002-171634/22.
XX
PT   Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT   the regulation of the flow of potassium through potassium channels in the
PT   treatment of e.g. multiple sclerosis.
XX
PS   Example 3; Page 83; 260pp; English.
XX
CC   The present invention describes substantially pure I-conotoxin peptides
CC   of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC   ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC   cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC   immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC   antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC   antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC   (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC   antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC   disseminated encephalomyelitis, optic neuromyelitis, progressive
CC   multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC   myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC   leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC   botulinum toxin poisoning, Huntington's chorea, compression and
CC   entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC   hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC   dysfunction, disorders resulting from the defects of neurotransmitter
CC   release and reversal of the actions curare and other neuromuscular
CC   blocking drugs. (I) can also be used to treat disorders associated with
CC   radical depolarisation of excitable membranes, and disorders associated
CC   with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC   are also useful for screening compounds that mimic the activity of an I-
CC   conotoxin. They are also useful for the treatment of autoimmune diseases,
CC   rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC   and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC   represent sequences used in the exemplification of the present invention
XX
SQ   Sequence 30 AA;

ABB88896  Length: 30  February 20, 2007 16:53  Type: P  Check: 4685  ..

       1  CLHETSPCGR SFQCCHGICC FRRCSNSCRF

!!AA_SEQUENCE 1.0
ID   ABB88901 standard; peptide; 31 AA.
XX
```

AC ABB88901;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus figulinus I-superfamily conotoxin type II peptide SEQ:473.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus figulinus.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 83; 260pp; English.
XX
CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC represent sequences used in the exemplification of the present invention
XX
SQ Sequence 31 AA;

ABB88901 Length: 31 February 20, 2007 16:53 Type: P Check: 6985 ..

1 CRAEGVYCEY GSQCCLSQCC MASCANPCRH P

!!AA_SEQUENCE 1.0
ID ABB88899 standard; peptide; 30 AA.
XX
AC ABB88899;
XX
DT 22-MAY-2002 (first entry)
XX
DE Conus figulinus I-superfamily conotoxin type II peptide SEQ:471.
XX
KW Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW potassium agonist; curare antagonist.
XX
OS Conus figulinus.
XX
PN WO200202590-A2.
XX
PD 10-JAN-2002.
XX
PF 29-JUN-2001; 2001WO-US020796.
XX
PR 30-JUN-2000; 2000US-0304166P.
PR 27-OCT-2000; 2000US-0243410P.
PR 08-NOV-2000; 2000US-0246581P.
PR 14-NOV-2000; 2000US-0247714P.
PR 29-JAN-2001; 2001US-0264256P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Walker CS, Shetty R, Jiminez EC, Mcintosh JM, Olivera BM;
PI Watkins M, Jones RM, Shen GS;
XX
DR WPI; 2002-171634/22.
XX
PT Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT the regulation of the flow of potassium through potassium channels in the
PT treatment of e.g. multiple sclerosis.
XX
PS Example 3; Page 83; 260pp; English.
XX
CC The present invention describes substantially pure I-conotoxin peptides
CC of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC disseminated encephalomyelitis, optic neuromyelitis, progressive
CC multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC botulinum toxin poisoning, Huntington's chorea, compression and
CC entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC dysfunction, disorders resulting from the defects of neurotransmitter
CC release and reversal of the actions curare and other neuromuscular
CC blocking drugs. (I) can also be used to treat disorders associated with
CC radical depolarisation of excitable membranes, and disorders associated
CC with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC are also useful for screening compounds that mimic the activity of an I-
CC conotoxin. They are also useful for the treatment of autoimmune diseases,
CC rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety

```
CC   and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC   represent sequences used in the exemplification of the present invention
XX
SQ   Sequence 30 AA;

ABB88899  Length: 30  February 20, 2007 16:53  Type: P  Check: 4017  ..

       1  CHHEGLPCTS DDGCCGMECC GGVCSSHCGN

!!AA_SEQUENCE 1.0
ID   ABB88897 standard; peptide; 30 AA.
XX
AC   ABB88897;
XX
DT   22-MAY-2002  (first entry)
XX
DE   Conus virgo I-superfamily conotoxin type II peptide SEQ:469.
XX
KW   Conotoxin; Conus; I-conotoxin; I-superfamily conotoxin; venom; antidote;
KW   cone snail; marine gastropod; neuroprotective; antiinflammatory;
KW   ophthalmological; antibacterial; anticonvulsant; muscular; antidiabetic;
KW   cardiovascular; antiarrhythmic; cardiant; immunosuppressive; nootropic;
KW   antiaddictive; cytostatic; cerebroprotective; antiasthmatic; vasotropic;
KW   analgesic; antimigraine; relaxant; antirheumatic; antiarthritic;
KW   dermatological; tranquilliser; neuroleptic; H-ATPase stimulator;
KW   potassium agonist; curare antagonist.
XX
OS   Conus virgo.
XX
PN   WO200202590-A2.
XX
PD   10-JAN-2002.
XX
PF   29-JUN-2001; 2001WO-US020796.
XX
PR   30-JUN-2000; 2000US-0304166P.
PR   27-OCT-2000; 2000US-0243410P.
PR   08-NOV-2000; 2000US-0246581P.
PR   14-NOV-2000; 2000US-0247714P.
PR   29-JAN-2001; 2001US-0264256P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Walker CS,  Shetty R,  Jiminez EC,  Mcintosh JM,  Olivera BM;
PI   Watkins M,  Jones RM,  Shen GS;
XX
DR   WPI; 2002-171634/22.
XX
PT   Pure I-conotoxin peptides isolated from venom of cone snails, useful for
PT   the regulation of the flow of potassium through potassium channels in the
PT   treatment of e.g. multiple sclerosis.
XX
PS   Example 3; Page 83; 260pp; English.
XX
CC   The present invention describes substantially pure I-conotoxin peptides
CC   of 30 -50 residues (I). (I) have neuroprotective, antiinflammatory,
CC   ophthalmological, antidote, antibacterial, anticonvulsant, muscular,
CC   cardiovascular, antiarrhythmic, cardiant, antidiabetic, antiaddictive,
CC   immunosuppressive, cytostatic, nootropic, cerebroprotective, relaxant,
CC   antiasthmatic, vasotropic, analgesic, antimigraine, antirheumatic,
CC   antiarthritic, dermatological, tranquilliser and neuroleptic activities.
CC   (I) can be used as an H-ATPase stimulator, potassium agonist and curare
CC   antagonist. (I) are useful in the treatment of multiple sclerosis, acute
CC   disseminated encephalomyelitis, optic neuromyelitis, progressive
CC   multifocal leukoencephalopathy, adrenoleukodystrophy, acute transverse
CC   myelitis, subacute sclerosing panencephalomyelitis, metachromic
CC   leukodystrophy, Pelizaeus-Merzbacher disease, spinal cord injury,
CC   botulinum toxin poisoning, Huntington's chorea, compression and
CC   entrapment neuropathies, cardiovascular disease, reactive gliosis,
CC   hyperglycaemia, immunosuppression, cocaine addiction, cancer, cognitive
CC   dysfunction, disorders resulting from the defects of neurotransmitter
CC   release and reversal of the actions curare and other neuromuscular
CC   blocking drugs. (I) can also be used to treat disorders associated with
CC   radical depolarisation of excitable membranes, and disorders associated
CC   with voltage gated ion channels, pain and a neuromuscular disorder. (I)
CC   are also useful for screening compounds that mimic the activity of an I-
CC   conotoxin. They are also useful for the treatment of autoimmune diseases,
CC   rheumatoid arthritis, systemic lupus eryhrematosus, Alzheimer's, anxiety
CC   and schizophrenia. ABL88662 to ABL88778 and ABB88546 to ABB88934
CC   represent sequences used in the exemplification of the present invention
XX
SQ   Sequence 30 AA;

ABB88897  Length: 30  February 20, 2007 16:53  Type: P  Check: 4835  ..

       1  CLYETSPCRR SFQCCHGICC FRRCSNSCRF

!!AA_SEQUENCE 1.0
ID   AAO15120 standard; peptide; 35 AA.
XX
AC   AAO15120;
XX
DT   22-AUG-2002  (first entry)
XX
DE   Agriosphodrus dohrni (assassin bug) calcium channel blocking peptide.
XX
KW   Assassin bug; venomous saliva; calcium channel blocking activity;
KW   stenocardia; hypertension; myocarditis; arrhythmia; cerebral ischaemia.
XX
OS   Agriosphodrus dohrni.
XX
PN   JP2002080499-A.
XX
PD   19-MAR-2002.
XX
PF   01-SEP-2000; 2000JP-00266187.
XX
PR   01-SEP-2000; 2000JP-00266187.
XX
PA   (SUNR ) SUNTORY LTD.
XX
DR   WPI; 2002-421068/45.
XX
PT   A new peptide derived from venomous saliva of assassin bug, has calcium
PT   channel blocking activity.
XX
PS   Claim 7; Page 2; 26pp; Japanese.
XX
CC   The invention comprises peptides having calcium channel blocking
CC   activities which are derived from the venomous saliva of assassin bugs.
CC   The calcium channel blocking peptides of the invention are useful for
CC   treating stenocardia, hypertension, myocarditis, arrhythmia and cerebral
CC   ischaemia. The present amino acid sequence represents an assassin bug
CC   calcium channel blocking peptide of the invention
XX
SQ   Sequence 35 AA;

AAO15120  Length: 35  February 20, 2007 16:53  Type: P  Check: 7710  ..

       1  ADDDCLPRGS KCLGENKQCC KGTTCMFYAN RCVGV

!!AA_SEQUENCE 1.0
ID   AAO15121 standard; peptide; 36 AA.
XX
AC   AAO15121;
XX
DT   22-AUG-2002  (first entry)
XX
DE   Isyndus obscurus (assassin bug) calcium channel blocking peptide.
XX
KW   Assassin bug; venomous saliva; calcium channel blocking activity;
KW   stenocardia; hypertension; myocarditis; arrhythmia; cerebral ischaemia.
XX
OS   Isyndus obscurus.
XX
```

PN JP2002080499-A.
XX
PD 19-MAR-2002.
XX
PF 01-SEP-2000; 2000JP-00266187.
XX
PR 01-SEP-2000; 2000JP-00266187.
XX
PA (SUNR) SUNTORY LTD.
XX
DR WPI; 2002-421068/45.
XX
PT A new peptide derived from venomous saliva of assassin bug, has calcium
PT channel blocking activity.
XX
PS Claim 9; Page 2; 26pp; Japanese.
XX
CC The invention comprises peptides having calcium channel blocking
CC activities which are derived from the venomous saliva of assassin bugs.
CC The calcium channel blocking peptides of the invention are useful for
CC treating stenocardia, hypertension, myocarditis, arrhythmia and cerebral
CC ischaemia. The present amino acid sequence represents an assassin bug
CC calcium channel blocking peptide of the invention
XX
SQ Sequence 36 AA;

AAO15121 Length: 36 February 20, 2007 16:53 Type: P Check: 9883 ..

1 GADEDCLPRG SKCLGENKQC CEKTTCMFYA NRCVGI

!!AA_SEQUENCE 1.0
ID ABG99363 standard; peptide; 36 AA.
XX
AC ABG99363;
XX
DT 17-JAN-2003 (first entry)
XX
DE Conus sp conotoxin-associated peptide SEQ ID 6.
XX
KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW ligand-gated ion channel modulator; pain-relief.
XX
OS Conus ammiralis.
XX
PN WO200264740-A2.
XX
PD 22-AUG-2002.
XX
PF 11-FEB-2002; 2002WO-US003887.
XX
PR 09-FEB-2001; 2001US-0267408P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz LJ;
PI Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;
XX
DR WPI; 2002-706921/76.
XX
PT New cone snail conotoxin peptides, useful as a pain reliever for
PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 109; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 36 AA;

ABG99363 Length: 36 February 20, 2007 16:53 Type: P Check: 613 ..

1 XRXGSCTSXL ATCTQDQQCC TDVCXKRDXC ALXDDR

!!AA_SEQUENCE 1.0
ID ABG99520 standard; peptide; 28 AA.
XX
AC ABG99520;
XX
DT 17-JAN-2003 (first entry)
XX
DE Conus sp conotoxin-associated peptide SEQ ID 233.
XX
KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW ligand-gated ion channel modulator; pain-relief.
XX
OS Conus textile.
XX
PN WO200264740-A2.
XX
PD 22-AUG-2002.
XX
PF 11-FEB-2002; 2002WO-US003887.
XX
PR 09-FEB-2001; 2001US-0267408P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz LJ;
PI Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;
XX
DR WPI; 2002-706921/76.
XX
PT New cone snail conotoxin peptides, useful as a pain reliever for
PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 196; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 28 AA;

ABG99520 Length: 28 February 20, 2007 16:53 Type: P Check: 1912 ..

1 DCXSXLGSCI AXSQCCSXVC DXXCRLXR

```
!!AA_SEQUENCE 1.0
ID   ABG99519 standard; protein; 31 AA.
XX
AC   ABG99519;
XX
DT   17-JAN-2003  (first entry)
XX
DE   Conus sp conotoxin-associated protein SEQ ID 232.
XX
KW   Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW   ligand-gated ion channel modulator; pain-relief.
XX
OS   Conus textile.
XX
PN   WO200264740-A2.
XX
PD   22-AUG-2002.
XX
PF   11-FEB-2002; 2002WO-US003887.
XX
PR   09-FEB-2001; 2001US-0267408P.
XX
PA   (COGN-) COGNETIX INC.
PA   (UTAH ) UNIV UTAH RES FOUND.
XX
PI   Olivera BM,  Mcintosh JM,  Watkins M,  Garrett JE,  Cruz LJ;
PI   Grilley M,  Walker CS,  Shetty R,  Jones RM,  Schoenfeld RM;
XX
DR   WPI; 2002-706921/76.
DR   N-PSDB; ABX04898.
XX
PT   New cone snail conotoxin peptides, useful as a pain reliever for
PT   alleviating pain in an individual suffering from pain or who is about to
PT   be subjected to a pain-causing event, or for treating voltage-gated ion
PT   channel disorders.
XX
PS   Claim 1; Page 195; 305pp; English.
XX
CC   This invention describes novel conotoxin peptides from the cone snail,
CC   genus Conus which have analgesic activity and can act as a voltage-gated
CC   ion channel modulator or a ligand-gated ion channel modulator. The
CC   conotoxin peptide is useful as a pain-relieving agent for alleviating
CC   pain in an individual who is either exhibiting pain or is about to be
CC   subjected to a pain-causing event. The conotoxin peptide is also useful
CC   for treating or preventing disorders associated with voltage-gated ion
CC   channel disorders, ligand-gated ion channel disorders or receptor
CC   disorders. The radiolabeled conotoxin peptide is also useful for
CC   characterising a new site on these receptors or channels, and for
CC   screening and identifying novel small molecules that interact with the
CC   above-mentioned channels or receptors, which are monoamine transporters.
CC   ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC   in the disclosure of the invention
XX
SQ   Sequence 31 AA;

ABG99519  Length: 31  February 20, 2007 16:53  Type: P  Check: 8445  ..

       1  LWSDCYSWLG SCIAPSQCCS EVCDYYCRLW R

!!AA_SEQUENCE 1.0
ID   ABG99674 standard; peptide; 36 AA.
XX
AC   ABG99674;
XX
DT   17-JAN-2003  (first entry)
XX
DE   Conus sp conotoxin-associated peptide SEQ ID 459.
XX
KW   Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW   ligand-gated ion channel modulator; pain-relief.
XX
OS   Conus ammiralis.
XX
PN   WO200264740-A2.
XX
PD   22-AUG-2002.
XX
PF   11-FEB-2002; 2002WO-US003887.
XX
PR   09-FEB-2001; 2001US-0267408P.
XX
PA   (COGN-) COGNETIX INC.
PA   (UTAH ) UNIV UTAH RES FOUND.
XX
PI   Olivera BM,  Mcintosh JM,  Watkins M,  Garrett JE,  Cruz LJ;
PI   Grilley M,  Walker CS,  Shetty R,  Jones RM,  Schoenfeld RM;
XX
DR   WPI; 2002-706921/76.
XX
PT   New cone snail conotoxin peptides, useful as a pain reliever for
PT   alleviating pain in an individual suffering from pain or who is about to
PT   be subjected to a pain-causing event, or for treating voltage-gated ion
PT   channel disorders.
XX
PS   Claim 1; Page 273; 305pp; English.
XX
CC   This invention describes novel conotoxin peptides from the cone snail,
CC   genus Conus which have analgesic activity and can act as a voltage-gated
CC   ion channel modulator or a ligand-gated ion channel modulator. The
CC   conotoxin peptide is useful as a pain-relieving agent for alleviating
CC   pain in an individual who is either exhibiting pain or is about to be
CC   subjected to a pain-causing event. The conotoxin peptide is also useful
CC   for treating or preventing disorders associated with voltage-gated ion
CC   channel disorders, ligand-gated ion channel disorders or receptor
CC   disorders. The radiolabeled conotoxin peptide is also useful for
CC   characterising a new site on these receptors or channels, and for
CC   screening and identifying novel small molecules that interact with the
CC   above-mentioned channels or receptors, which are monoamine transporters.
CC   ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC   in the disclosure of the invention
XX
SQ   Sequence 36 AA;

 ABG99674  Length: 36  February 20, 2007 16:53  Type: P  Check: 567  ..

       1  WREGSCTSWL ATCTQDQQCC TDVCYKRDYC ALWDDR

!!AA_SEQUENCE 1.0
ID   ABG99681 standard; peptide; 32 AA.
XX
AC   ABG99681;
XX
DT   17-JAN-2003  (first entry)
XX
DE   Conus sp conotoxin-associated peptide SEQ ID 466.
XX
KW   Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW   ligand-gated ion channel modulator; pain-relief.
XX
OS   Conus gloriamaris.
XX
PN   WO200264740-A2.
XX
PD   22-AUG-2002.
XX
PF   11-FEB-2002; 2002WO-US003887.
XX
PR   09-FEB-2001; 2001US-0267408P.
XX
PA   (COGN-) COGNETIX INC.
PA   (UTAH ) UNIV UTAH RES FOUND.
XX
PI   Olivera BM,  Mcintosh JM,  Watkins M,  Garrett JE,  Cruz LJ;
PI   Grilley M,  Walker CS,  Shetty R,  Jones RM,  Schoenfeld RM;
XX
DR   WPI; 2002-706921/76.
```

XX
PT New cone snail conotoxin peptides, useful as a pain reliever for
PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 275; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 32 AA;

ABG99681 Length: 32 February 20, 2007 16:53 Type: P Check: 9467 ..

1 ECRAWYAPCS PGAQCCSLLM CSKATSRCIL AL

!!AA_SEQUENCE 1.0
ID ABG99679 standard; peptide; 27 AA.
XX
AC ABG99679;
XX
DT 17-JAN-2003 (first entry)
XX
DE Conus sp conotoxin-associated peptide SEQ ID 464.
XX
KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW ligand-gated ion channel modulator; pain-relief.
XX
OS Conus ammiralis.
XX
PN WO200264740-A2.
XX
PD 22-AUG-2002.
XX
PF 11-FEB-2002; 2002WO-US003887.
XX
PR 09-FEB-2001; 2001US-0267408P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz LJ;
PI Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;
XX
DR WPI; 2002-706921/76.
XX
PT New cone snail conotoxin peptides, useful as a pain reliever for
PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 274; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 27 AA;

ABG99679 Length: 27 February 20, 2007 16:53 Type: P Check: 8960 ..

1 CSSWAKYCEV DSECCSEQCV RSYCAMW

!!AA_SEQUENCE 1.0
ID ABG99678 standard; peptide; 26 AA.
XX
AC ABG99678;
XX
DT 17-JAN-2003 (first entry)
XX
DE Conus sp conotoxin-associated peptide SEQ ID 463.
XX
KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW ligand-gated ion channel modulator; pain-relief.
XX
OS Conus ammiralis.
XX
PN WO200264740-A2.
XX
PD 22-AUG-2002.
XX
PF 11-FEB-2002; 2002WO-US003887.
XX
PR 09-FEB-2001; 2001US-0267408P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz LJ;
PI Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;
XX
DR WPI; 2002-706921/76.
XX
PT New cone snail conotoxin peptides, useful as a pain reliever for
PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 274; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 26 AA;

ABG99678 Length: 26 February 20, 2007 16:53 Type: P Check: 6025 ..

1 LCPDYTEPCS HAHECCSWNC HNGHCT

!!AA_SEQUENCE 1.0

ID ABG99676 standard; peptide; 39 AA.
XX
AC ABG99676;
XX
DT 17-JAN-2003 (first entry)
XX
DE Conus sp conotoxin-associated peptide SEQ ID 461.
XX
KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW ligand-gated ion channel modulator; pain-relief.
XX
OS Conus ammiralis.
XX
PN WO200264740-A2.
XX
PD 22-AUG-2002.
XX
PF 11-FEB-2002; 2002WO-US003887.
XX
PR 09-FEB-2001; 2001US-0267408P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz LJ;
PI Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;
XX
DR WPI; 2002-706921/76.
XX
PT New cone snail conotoxin peptides, useful as a pain reliever for
PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 274; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 39 AA;

ABG99676 Length: 39 February 20, 2007 16:53 Type: P Check: 8797 ..

1 WWRWGGCMAW FGKCSKDSEC CSNSCDITRC ELMRFPPDW

!!AA_SEQUENCE 1.0
ID ABG99673 standard; peptide; 31 AA.
XX
AC ABG99673;
XX
DT 17-JAN-2003 (first entry)
XX
DE Conus sp conotoxin-associated peptide SEQ ID 458.
XX
KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW ligand-gated ion channel modulator; pain-relief.
XX
OS Conus ammiralis.
XX
PN WO200264740-A2.
XX
PD 22-AUG-2002.
XX
PF 11-FEB-2002; 2002WO-US003887.
XX
PR 09-FEB-2001; 2001US-0267408P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz LJ;
PI Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;
XX
DR WPI; 2002-706921/76.
XX
PT New cone snail conotoxin peptides, useful as a pain reliever for
PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 273; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 31 AA;

ABG99673 Length: 31 February 20, 2007 16:53 Type: P Check: 6848 ..

1 GMWGDCKDGL TTCFAPSECC SEDCEGSCTM W

!!AA_SEQUENCE 1.0
ID ABG99689 standard; peptide; 28 AA.
XX
AC ABG99689;
XX
DT 17-JAN-2003 (first entry)
XX
DE Conus sp conotoxin-associated peptide SEQ ID 474.
XX
KW Conotoxin; cone snail; analgesic; voltage-gated ion channel modulator;
KW ligand-gated ion channel modulator; pain-relief.
XX
OS Conus textile.
XX
PN WO200264740-A2.
XX
PD 22-AUG-2002.
XX
PF 11-FEB-2002; 2002WO-US003887.
XX
PR 09-FEB-2001; 2001US-0267408P.
XX
PA (COGN-) COGNETIX INC.
PA (UTAH) UNIV UTAH RES FOUND.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Cruz LJ;
PI Grilley M, Walker CS, Shetty R, Jones RM, Schoenfeld RM;
XX
DR WPI; 2002-706921/76.
XX
PT New cone snail conotoxin peptides, useful as a pain reliever for

PT alleviating pain in an individual suffering from pain or who is about to
PT be subjected to a pain-causing event, or for treating voltage-gated ion
PT channel disorders.
XX
PS Claim 1; Page 277; 305pp; English.
XX
CC This invention describes novel conotoxin peptides from the cone snail,
CC genus Conus which have analgesic activity and can act as a voltage-gated
CC ion channel modulator or a ligand-gated ion channel modulator. The
CC conotoxin peptide is useful as a pain-relieving agent for alleviating
CC pain in an individual who is either exhibiting pain or is about to be
CC subjected to a pain-causing event. The conotoxin peptide is also useful
CC for treating or preventing disorders associated with voltage-gated ion
CC channel disorders, ligand-gated ion channel disorders or receptor
CC disorders. The radiolabeled conotoxin peptide is also useful for
CC characterising a new site on these receptors or channels, and for
CC screening and identifying novel small molecules that interact with the
CC above-mentioned channels or receptors, which are monoamine transporters.
CC ABG99360-ABG99853 represent the conotoxin protein and peptides described
CC in the disclosure of the invention
XX
SQ Sequence 28 AA;

ABG99689 Length: 28 February 20, 2007 16:53 Type: P Check: 1490 ..

1 DCYSWLGSCI APSQCCSEVC DYYCRLWR

!!AA_SEQUENCE 1.0
ID ABB96715 standard; peptide; 31 AA.
XX
AC ABB96715;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Bu6.2 generic toxin sequence.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus bullatus.
XX
FH Key Location/Qualifiers
FT Misc-difference 4
FT /label= OTHER
FT /note= "OTHER is Pro or Hydroxy Pro"
FT Misc-difference 11
FT /label= OTHER
FT /note= "OTHER is Pro or Hydroxy Pro"
FT Misc-difference 18
FT /label= OTHER
FT /note= "OTHER is Pro or Hydroxy Pro"
FT Misc-difference 26
FT /label= OTHER
FT /note= "OTHER is Pro or Hydroxy Pro"
FT Misc-difference 28
FT /label= OTHER
FT /note= "OTHER is Pro or Hydroxy Pro"
FT Misc-difference 30
FT /label= OTHER
FT /note= "OTHER is Glu or gamma-carboxy Glu"
FT Misc-difference 31
FT /label= OTHER
FT /note= "OTHER is Trp or Bromo Trp"
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US023041.
XX
PR 21-JUL-2000; 2000US-0219616P.
PR 05-FEB-2001; 2001US-0265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurologic or
PT cardiovascular disorders.
XX
PS Example 2; Page 30; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of the
CC peptides of the invention may be described as, analgesic, anticonvulsant,
CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC by modulating the activity of voltage gated ion channels. They may be
CC used for treating or preventing disorders associated with voltage gated
CC ion channels such as neurological disorders, e.g. seizure (associated
CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC They may also be used for treating psychiatric disorders e.g. psychosis,
CC anxiety or schizophrenia. The analgesic agents of the invention show
CC diminished side effects and toxicity, and are non-addictive. The
CC sequences given in records ABB96698-ABB96806 represent omega-conopeptide
CC generic toxin sequences
XX
SQ Sequence 31 AA;

ABB96715 Length: 31 February 20, 2007 16:53 Type: P Check: 9600 ..

1 CITXGTACKV XSQCCRGXCK NGRCTXSXSX X

!!AA_SEQUENCE 1.0
ID ABB96883 standard; peptide; 27 AA.
XX
AC ABB96883;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Ra6.2 toxin sequence.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus rattus.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US023041.
XX

```
PR   21-JUL-2000; 2000US-0219616P.
PR   05-FEB-2001; 2001US-0265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM,  Mcintosh JM,  Watkins M,  Garrett JE,  Shon K;
PI   Jacobsen R,  Jones RM,  Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurologic or
PT   cardiovascular disorders.
XX
PS   Claim 1(a); Page 72; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of the
CC   peptides of the invention may be described as, analgesic, anticonvulsant,
CC   vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC   antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC   antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC   by modulating the activity of voltage gated ion channels. They may be
CC   used for treating or preventing disorders associated with voltage gated
CC   ion channels such as neurological disorders, e.g. seizure (associated
CC   with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC   anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC   chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC   events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC   They may also be used for treating psychiatric disorders e.g. psychosis,
CC   anxiety or schizophrenia. The analgesic agents of the invention show
CC   diminished side effects and toxicity, and are non-addictive. The
CC   sequences given in records ABB96807-ABB96905 represent omega-conopeptide
CC   toxin sequences
XX
SQ   Sequence 27 AA;

ABB96883  Length: 27  February 20, 2007 16:53  Type: P  Check: 8400  ..

       1  CNARNSGCSQ HPQCCSGSCN KTAGVCL

!!AA_SEQUENCE 1.0
ID   ABB96798 standard; peptide; 31 AA.
XX
AC   ABB96798;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide Vi6.1 generic toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus viola.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 11
FT                   /label= OTHER
FT                   /note= "OTHER is Pro or Hydroxy Pro"
FT   Misc-difference 26
FT                   /label= OTHER
FT                   /note= "OTHER is Pro or Hydroxy Pro"
FT   Misc-difference 28
FT                   /label= OTHER
FT                   /note= "OTHER is Pro or Hydroxy Pro"
FT   Misc-difference 29
FT                   /label= OTHER
FT                   /note= "OTHER is Glu or gamma-carboxy Glu"
FT   Misc-difference 30
FT                   /label= OTHER
FT                   /note= "OTHER is Glu or gamma-carboxy Glu"
FT   Misc-difference 31
FT                   /label= OTHER
FT                   /note= "OTHER is Trp or Bromo Trp"
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US023041.
XX
PR   21-JUL-2000; 2000US-0219616P.
PR   05-FEB-2001; 2001US-0265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM,  Mcintosh JM,  Watkins M,  Garrett JE,  Shon K;
PI   Jacobsen R,  Jones RM,  Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurologic or
PT   cardiovascular disorders.
XX
PS   Example 2; Page 67; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of the
CC   peptides of the invention may be described as, analgesic, anticonvulsant,
CC   vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC   antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC   antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC   by modulating the activity of voltage gated ion channels. They may be
CC   used for treating or preventing disorders associated with voltage gated
CC   ion channels such as neurological disorders, e.g. seizure (associated
CC   with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC   anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC   chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC   events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC   They may also be used for treating psychiatric disorders e.g. psychosis,
CC   anxiety or schizophrenia. The analgesic agents of the invention show
CC   diminished side effects and toxicity, and are non-addictive. The
CC   sequences given in records ABB96698-ABB96806 represent omega-conopeptide
CC   generic toxin sequences
XX
SQ   Sequence 31 AA;

ABB96798  Length: 31  February 20, 2007 16:53  Type: P  Check: 9455  ..

       1  CITLGTRCKV XSQCCRSSCK NGRCAXSXXX X

!!AA_SEQUENCE 1.0
ID   ABB96884 standard; peptide; 27 AA.
XX
AC   ABB96884;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide Ra6.3 toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
```

```
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus rattus.
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US023041.
XX
PR   21-JUL-2000; 2000US-0219616P.
PR   05-FEB-2001; 2001US-0265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM,  Mcintosh JM,  Watkins M,  Garrett JE,  Shon K;
PI   Jacobsen R,  Jones RM,  Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurologic or
PT   cardiovascular disorders.
XX
PS   Claim 1(a); Page 72; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of the
CC   peptides of the invention may be described as, analgesic, anticonvulsant,
CC   vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC   antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC   antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC   by modulating the activity of voltage gated ion channels. They may be
CC   used for treating or preventing disorders associated with voltage gated
CC   ion channels such as neurological disorders, e.g. seizure (associated
CC   with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC   anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC   chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC   events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC   They may also be used for treating psychiatric disorders e.g. psychosis,
CC   anxiety or schizophrenia. The analgesic agents of the invention show
CC   diminished side effects and toxicity, and are non-addictive. The
CC   sequences given in records ABB96807-ABB96905 represent omega-conopeptide
CC   toxin sequences
XX
SQ   Sequence 27 AA;

ABB96884  Length: 27  February 20, 2007 16:53  Type: P  Check: 8653  ..

       1  CNARNSGCSQ HPQCCSGSCN KTLGVCL

!!AA_SEQUENCE 1.0
ID   ABB96780 standard; peptide; 27 AA.
XX
AC   ABB96780;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide Ra6.3 generic toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
XX
OS   Conus rattus.
XX
FH   Key             Location/Qualifiers
FT   Misc-difference 12
FT                   /label= OTHER
FT                   /note= "OTHER is Pro or Hydroxy Pro"
XX
PN   WO200207675-A2.
XX
PD   31-JAN-2002.
XX
PF   23-JUL-2001; 2001WO-US023041.
XX
PR   21-JUL-2000; 2000US-0219616P.
PR   05-FEB-2001; 2001US-0265888P.
XX
PA   (UTAH ) UNIV UTAH RES FOUND.
PA   (COGN-) COGNETIX INC.
XX
PI   Olivera BM,  Mcintosh JM,  Watkins M,  Garrett JE,  Shon K;
PI   Jacobsen R,  Jones RM,  Cartier GE;
XX
DR   WPI; 2002-257318/30.
XX
PT   New omega-conopeptides useful for treating disorders associated with
PT   voltage gated ion channels e.g. pain, inflammation, neurologic or
PT   cardiovascular disorders.
XX
PS   Example 2; Page 59; 195pp; English.
XX
CC   The invention relates to isolated omega-conopeptides, nucleic acid
CC   sequences encoding them, and propeptide sequences. The activity of the
CC   peptides of the invention may be described as, analgesic, anticonvulsant,
CC   vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC   antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC   antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC   by modulating the activity of voltage gated ion channels. They may be
CC   used for treating or preventing disorders associated with voltage gated
CC   ion channels such as neurological disorders, e.g. seizure (associated
CC   with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC   anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC   chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC   events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC   They may also be used for treating psychiatric disorders e.g. psychosis,
CC   anxiety or schizophrenia. The analgesic agents of the invention show
CC   diminished side effects and toxicity, and are non-addictive. The
CC   sequences given in records ABB96698-ABB96806 represent omega-conopeptide
CC   generic toxin sequences
XX
SQ   Sequence 27 AA;

ABB96780  Length: 27  February 20, 2007 16:53  Type: P  Check: 8749  ..

       1  CNARNSGCSQ HXQCCSGSCN KTLGVCL

!!AA_SEQUENCE 1.0
ID   ABB96882 standard; peptide; 27 AA.
XX
AC   ABB96882;
XX
DT   12-JUL-2002  (first entry)
XX
DE   Omega-conopeptide Ra6.1 toxin sequence.
XX
KW   Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW   neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW   antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW   anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW   neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW   stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW   drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW   migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW   psychosis; anxiety; schizophrenia.
```

XX
OS Conus rattus.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US023041.
XX
PR 21-JUL-2000; 2000US-0219616P.
PR 05-FEB-2001; 2001US-0265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurologic or
PT cardiovascular disorders.
XX
PS Claim 1(a); Page 72; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of the
CC peptides of the invention may be described as, analgesic, anticonvulsant,
CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC by modulating the activity of voltage gated ion channels. They may be
CC used for treating or preventing disorders associated with voltage gated
CC ion channels such as neurological disorders, e.g. seizure (associated
CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC They may also be used for treating psychiatric disorders e.g. psychosis,
CC anxiety or schizophrenia. The analgesic agents of the invention show
CC diminished side effects and toxicity, and are non-addictive. The
CC sequences given in records ABB96807-ABB96905 represent omega-conopeptide
CC toxin sequences
XX
SQ Sequence 27 AA;

ABB96882 Length: 27 February 20, 2007 16:53 Type: P Check: 8346 ..

1 CNARNDGCSQ HSQCCSGSCN KTAGVCL

!!AA_SEQUENCE 1.0
ID ABB96820 standard; peptide; 31 AA.
XX
AC ABB96820;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Bu6.2 toxin sequence.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus bullatus.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US023041.
XX
PR 21-JUL-2000; 2000US-0219616P.
PR 05-FEB-2001; 2001US-0265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurologic or
PT cardiovascular disorders.
XX
PS Claim 1(a); Page 71; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of the
CC peptides of the invention may be described as, analgesic, anticonvulsant,
CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC by modulating the activity of voltage gated ion channels. They may be
CC used for treating or preventing disorders associated with voltage gated
CC ion channels such as neurological disorders, e.g. seizure (associated
CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC They may also be used for treating psychiatric disorders e.g. psychosis,
CC anxiety or schizophrenia. The analgesic agents of the invention show
CC diminished side effects and toxicity, and are non-addictive. The
CC sequences given in records ABB96807-ABB96905 represent omega-conopeptide
CC toxin sequences
XX
SQ Sequence 31 AA;

ABB96820 Length: 31 February 20, 2007 16:53 Type: P Check: 8422 ..

1 CITPGTRCKV PSQCCRGPCK NGRCTPSPSE W

!!AA_SEQUENCE 1.0
ID ABB96899 standard; peptide; 31 AA.
XX
AC ABB96899;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Vi6.1 toxin sequence.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus viola.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US023041.

XX
PR 21-JUL-2000; 2000US-0219616P.
PR 05-FEB-2001; 2001US-0265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurologic or
PT cardiovascular disorders.
XX
PS Claim 1(a); Page 72; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of the
CC peptides of the invention may be described as, analgesic, anticonvulsant,
CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC by modulating the activity of voltage gated ion channels. They may be
CC used for treating or preventing disorders associated with voltage gated
CC ion channels such as neurological disorders, e.g. seizure (associated
CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC They may also be used for treating psychiatric disorders e.g. psychosis,
CC anxiety or schizophrenia. The analgesic agents of the invention show
CC diminished side effects and toxicity, and are non-addictive. The
CC sequences given in records ABB96807-ABB96905 represent omega-conopeptide
CC toxin sequences
XX
SQ Sequence 31 AA;

ABB96899 Length: 31 February 20, 2007 16:53 Type: P Check: 7783 ..

1 CITLGTRCKV PSQCCRSSCK NGRCAPSPEE W

!!AA_SEQUENCE 1.0
ID ABB96779 standard; peptide; 27 AA.
XX
AC ABB96779;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Ra6.2 generic toxin sequence.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus rattus.
XX
FH Key Location/Qualifiers
FT Misc-difference 12
FT /label= OTHER
FT /note= "OTHER is Pro or Hydroxy Pro"
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US023041.
XX
PR 21-JUL-2000; 2000US-0219616P.
PR 05-FEB-2001; 2001US-0265888P.
XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurologic or
PT cardiovascular disorders.
XX
PS Example 2; Page 59; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of the
CC peptides of the invention may be described as, analgesic, anticonvulsant,
CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC by modulating the activity of voltage gated ion channels. They may be
CC used for treating or preventing disorders associated with voltage gated
CC ion channels such as neurological disorders, e.g. seizure (associated
CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC They may also be used for treating psychiatric disorders e.g. psychosis,
CC anxiety or schizophrenia. The analgesic agents of the invention show
CC diminished side effects and toxicity, and are non-addictive. The
CC sequences given in records ABB96698-ABB96806 represent omega-conopeptide
CC generic toxin sequences
XX
SQ Sequence 27 AA;

ABB96779 Length: 27 February 20, 2007 16:53 Type: P Check: 8496 ..

1 CNARNSGCSQ HXQCCSGSCN KTAGVCL

!!AA_SEQUENCE 1.0
ID ABB96778 standard; peptide; 27 AA.
XX
AC ABB96778;
XX
DT 12-JUL-2002 (first entry)
XX
DE Omega-conopeptide Ra6.1 toxin sequence.
XX
KW Omega-conopeptide; analgesic; anticonvulsant; vasotropic; cardiant;
KW neuroprotective; cerebroprotective; cardiovascular; antiinflammatory;
KW antimigraine; antidiabetic; tranquiliser; vulnerary; antipsychotic;
KW anxiolytic; neuroleptic; voltage gated ion channel; seizure; epilepsy;
KW neurological disorder; neurotoxic injury; hypoxia; anoxia; ischaemia;
KW stroke; cerebrovascular accident; brain trauma; spinal chord trauma;
KW drowning; suffocation; perinatal asphyxia; hypoglycaemic event; pain;
KW migraine; inflammation; cardiovascular disorder; psychiatric disorder;
KW psychosis; anxiety; schizophrenia.
XX
OS Conus rattus.
XX
PN WO200207675-A2.
XX
PD 31-JAN-2002.
XX
PF 23-JUL-2001; 2001WO-US023041.
XX
PR 21-JUL-2000; 2000US-0219616P.
PR 05-FEB-2001; 2001US-0265888P.

XX
PA (UTAH) UNIV UTAH RES FOUND.
PA (COGN-) COGNETIX INC.
XX
PI Olivera BM, Mcintosh JM, Watkins M, Garrett JE, Shon K;
PI Jacobsen R, Jones RM, Cartier GE;
XX
DR WPI; 2002-257318/30.
XX
PT New omega-conopeptides useful for treating disorders associated with
PT voltage gated ion channels e.g. pain, inflammation, neurologic or
PT cardiovascular disorders.
XX
PS Example 2; Page 58; 195pp; English.
XX
CC The invention relates to isolated omega-conopeptides, nucleic acid
CC sequences encoding them, and propeptide sequences. The activity of the
CC peptides of the invention may be described as, analgesic, anticonvulsant,
CC vasotropic, cardiant, neuroprotective, cerebroprotective, cardiovascular,
CC antiinflammatory, antimigraine, antidiabetic, tranquiliser, vulnerary,
CC antipsychotic, anxiolytic and neuroleptic. Peptides of the invention act
CC by modulating the activity of voltage gated ion channels. They may be
CC used for treating or preventing disorders associated with voltage gated
CC ion channels such as neurological disorders, e.g. seizure (associated
CC with epilepsy), neurotoxic injury associated with conditions of hypoxia,
CC anoxia, ischaemia, stroke, cerebrovascular accident, brain or spinal
CC chord trauma, drowning, suffocation, perinatal asphyxia or hypoglycaemic
CC events; pain e.g. migraine; inflammation or cardiovascular disorders.
CC They may also be used for treating psychiatric disorders e.g. psychosis,
CC anxiety or schizophrenia. The analgesic agents of the invention show
CC diminished side effects and toxicity, and are non-addictive. The
CC sequences given in records ABB96698-ABB96806 represent omega-conopeptide
CC generic toxin sequences
XX
SQ Sequence 27 AA;

ABB96778 Length: 27 February 20, 2007 16:53 Type: P Check: 8346 ..

1 CNARNDGCSQ HSQCCSGSCN KTAGVCL

!!AA_SEQUENCE 1.0
ID ADL11898 standard; protein; 33 AA.
XX
AC ADL11898;
XX
DT 06-MAY-2004 (first entry)
XX
DE HWTX-I protein sequence.
XX
KW Bacillus thuringiensis; spider toxin gene; biopesticide.
XX
OS Bacillus thuringiensis.
XX
PN CN1366822-A.
XX
PD 04-SEP-2002.
XX
PF 18-JUL-2001; 2001CN-00114592.
XX
PR 18-JUL-2001; 2001CN-00114592.
XX
PA (UYHU-) UNIV HUNAN NORMAL.
XX
PI Xia L, Liang S, Ding X;
XX
DR WPI; 2003-483110/46.
DR N-PSDB; ADL11897.
XX
PT New strain of Bacillus thuringiensis, containing a spider toxin gene and
PT a promoter sequence, is used as a biopesticide.
XX
PS Disclosure; SEQ ID NO 2; 28pp; Chinese.
XX
CC The present invention relates to a Bacillus thuringiensis strain
CC comprising a spider toxin gene and a strong promoter sequence. The
CC B.thuringiensis is used as a biopesticide as it can produce the
CC B.thuringiensis toxin and a spider toxin. The present sequence represents
CC a HWTX-I protein sequence.
XX
SQ Sequence 33 AA;

ADL11898 Length: 33 February 20, 2007 16:53 Type: P Check: 2431 ..

1 ACKGVFDACT PGKNECCPNR VCSDKHKWCK WKL

!!AA_SEQUENCE 1.0
ID ADS31829 standard; peptide; 33 AA.
XX
AC ADS31829;
XX
DT 30-DEC-2004 (first entry)
XX
DE Selenocosmia huwena spider venom peptide 1QK6_A (Huwenotoxin-I), SEQ:12.
XX
KW Mechano-sensitive channel; cation-selective stretch-activated channel;
KW inhibitor peptide; GsMTx-4; spider venom; atrial fibrillation;
KW antiarrhythmic; 1QK6_A; Huwenotoxin-I.
XX
OS Ornithoctonus huwena.
XX
PN WO2004085647-A1.
XX
PD 07-OCT-2004.
XX
PF 25-MAR-2004; 2004WO-JP004190.
XX
PR 26-MAR-2003; 2003JP-00085666.
XX
PA (PHAR-) PHARMADESIGN INC.
XX
PI Yokotagawa T, Sokabe M, Furuya T;
XX
DR WPI; 2004-719044/70.
XX
PT Novel polypeptides such as TVP003, TVP004, TVP005 or their salts, which
PT specifically inhibits activity of mechano-sensitive channel, useful for
PT treating atrial fibrillation.
XX
PS Example 1; SEQ ID NO 12; 49pp; Japanese.
XX
CC The invention relates to peptides (ADS31818-ADS31820 and ADS31833-
CC ADS31834) or their salts which specifically inhibit the activity of
CC mechano-sensitive channels. The peptides are based on the sequence of
CC fragments of the known Grammostola spatulata spider venom peptide GsMTx-4
CC ADS31821 which blocks cation-selective stretch-activated channels, and
CC with the exception of TVP003 ADS31818, comprise at least one Cys to Ala
CC substitution. The entire GsMTx-4 sequence is specifically excluded from
CC the scope of the invention. The invention also relates to polynucleotides
CC encoding the mechano-sensitive channel inhibitor peptides, and vectors
CC and host cells comprising such polynucleotides. The peptides of the
CC invention are useful for treating atrial fibrillation and for studying
CC the mechanisms of mechano-sensitive channels. The present sequence
CC represents the Selenocosmia huwena (Ornithoctonus huwena) spider venom
CC peptide 1QK6_A (also known as Huwenotoxin-I) used in an example of the
CC invention. Note: No graphical information is provided regarding
CC disulphide bonds in this peptide (in contrast to the Grammostola
CC spatulata spider venom peptide GsMTx-4).
XX
SQ Sequence 33 AA;

ADS31829 Length: 33 February 20, 2007 16:53 Type: P Check: 2431 ..

1 ACKGVFDACT PGKNECCPNR VCSDKHKWCK WKL

```
! FINDPATTERNS on pir:* allowing 0 mismatches
!       1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>

        A58175  ck: 8971  len: 27    ! delta-conotoxin TxVIIA - cone shell (Conus

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                       Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}
          1:            CGGYSTYCEVDSECCSDNCVRSYCTLF

        A37479  ck: 2431  len: 33    ! huwentoxin-I - Chinese bird spider

1                <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
                       xCx{6}Cx{5}(E)CCx{4}Cx{6}Cx{4}
          1:           ACKGVFDACTPGKNECCPNRVCSDKHKWCKWKL

 Databases searched:
       NBRF, Release 80.0, Released on 31Dec2004, Formatted on 21Jun2005

    Total finds:              2
   Total length:     96,216,763
Total sequences:        283,416
       CPU time:          52.98
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pattern searched

use Accession # to match alignment to reference

pattern matched

matching portion of db. sequence

!!AA_SEQUENCE 1.0
P1;A58175 - delta-conotoxin TxVIIA - cone shell (Conus textile)
N;Alternate names: conotoxin TxIIA
C;Species: Conus textile (cloth-of-gold cone)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 09-Jul-2004
C;Accession: A58175; S19620
R;Nakamura, T.; Yu, Z.; Fainzilber, M.; Burlingame, A.L.
Protein Sci. 5, 524-530, 1996
A;Title: Mass spectrometric-based revision of the structure of a cysteine-rich peptide toxin with gamma-carboxyglutamic acid, TxVIIA, from the sea snail, Conus textile.
A;Reference number: A58175; MUID:97022130; PMID:8868490
A;Contents: correction
A;Accession: A58175
A;Molecule type: protein
A;Residues: 1-27 <NAK>
A;Cross-references: UNIPROT:P24160; UNIPARC:UPI00001287AE
R;Fainzilber, M.; Gordon, D.; Hasson, A.; Spira, M.E.; Zlotkin, E.
Eur. J. Biochem. 202, 589-595, 1991
A;Title: Mollusc-specific toxins from the venom of Conus textile neovicarius.
A;Reference number: S19553; MUID:92104183; PMID:1761058
A;Accession: S19620
A;Molecule type: protein
A;Residues: 'W',2-25 <FAI>
A;Cross-references: UNIPARC:UPI000017361E
C;Superfamily: omega-conotoxin
C;Keywords: amidated carboxyl end; carboxyglutamic acid; neurotoxin; sodium channel inhibitor; venom
F;1-15,8-19,14-24/Disulfide bonds: #status predicted
F;9,13/Modified site: gamma-carboxyglutamic acid (Glu) #status experimental
F;27/Modified site: amidated carboxyl end (Phe) #status experimental

A58175 Length: 27 February 20, 2007 13:58 Type: P Check: 8971 ..

1 CGGYSTYCEV DSECGDNCV RSYCTLF

Xaa = Des-Xaa

use Accession # to match reference to alignment

ENTRY_SEQUENCE 1.0
P1;A37479 - huwentoxin-I - Chinese bird spider
C;Species: Selenocosmia huwena (Chinese bird spider)
C;Date: 18-Mar-1994 #sequence_revision 07-Oct-1994 #text_change 09-Jul-2004
C;Accession: A37479; JC1089
R;Liang, S.P.; Zhang, D.Y.; Pan, X.; Chen, Q.; Zhou, P.A.
Toxicon 31, 969-978, 1993
A;Title: Properties and amino acid sequence of huwentoxin-I, a neurotoxin purified from the venom of the Chinese bird spider Selenocosmia huwena.
A;Reference number: A37479; MUID:94024948; PMID:8212049
A;Accession: A37479
A;Molecule type: protein
A;Residues: 1-33 <LIA>
A;Cross-references: UNIPROT:P56676; UNIPARC:UPI0000046672
R;Liang, S.P.; Zong, X.; Luo, J.C.; Jing, H.; Gu, X.C.
Acta Sci. Natur. Univ. Pekin. 29, 668-674, 1993
A;Title: Secondary structure study of huwentoxin-I, a neurotoxin from the venom of the spider Selenocosmia huwena.
A;Reference number: JC1089
A;Accession: JC1089
A;Molecule type: protein
A;Residues: 1-33 <LI2>
A;Cross-references: UNIPARC:UPI0000046672
C;Comment: This peptide is the major active protein component of venom in this species. The crude venom was shown to act as a presynaptic neurotoxin.
C;Keywords: presynaptic neurotoxin; venom
F;2-17,9-22,16-29/Disulfide bonds: #status experimental

A37479 Length: 33 February 20, 2007 13:58 Type: P Check: 2431 ..

1 ACKGVFDACT PGKNECCPNR VCSDKHKWCK WKL

! FINDPATTERNS on uniprot:* allowing 0 mismatches

1 <X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>

ADO1_AGRDO ck: 7710 len: 35 ! P58608 agriosphodrus dohrni (assassin bug).

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{4}Cx{6}Cx{5}(Q)CCx{4}Cx{6}Cx{3}
1: ADDDCLPRGSKCLGENKQCCKGTTCMFYANRCVGV

CX7A_CONTE ck: 8971 len: 27 ! P24160 conus textile (cloth-of-gold cone).

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
Cx{6}Cx{4}(E)CCx{3}Cx{4}Cx{3}
1: CGGYSTYCEVDSECCSDNCVRSYCTLF

CXG6_CONTE ck: 6937 len: 31 ! P58922 conus textile (cloth-of-gold cone).

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{5}Cx{6}Cx{4}(E)CCx{3}Cx{3}Cx{3}
1: GMWGECKDGLTTCLAPSECCSEDCEGSCTMW

CXG7A_CONPE ck: 385 len: 32 ! P56711 conus pennaceus (feathered cone). ga

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{4}(E)CCx{3}Cx{4}Cx{7}
1: DCTSWFGRCTVNSECCSNSCDQTYCELYAFPS

IOB1_ISYOB ck: 9883 len: 36 ! P58609 isyndus obscurus (assassin bug). tox

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
x{5}Cx{6}Cx{5}(Q)CCx{4}Cx{6}Cx{3}
1: GADEDCLPRGSKCLGENKQCCEKTTCMFYANRCVGI

TXHA1_SELHA ck: 2511 len: 33 ! P83591 selenocosmia hainana (chinese bird s

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{5}(E)CCx{4}Cx{6}Cx{4}
1: ECKGFGKSCVPGKNECCSGYACNSRDKWCKVLL

TXHA3_SELHA ck: 2983 len: 33 ! P83464 selenocosmia hainana (chinese bird s

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{5}(E)CCx{4}Cx{6}Cx{4}
1: GCKGFGDSCTPGKNECCPNYACSSKHKWCKVYL

TXHP1_HETVE ck: 3006 len: 33 ! P58425 heteropoda venatoria (giant crab spi

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{5}(E)CCx{4}Cx{4}Cx{6}
1: DCGTIWHYCGTDQSECCEGWKCSRQLCKYVIDW

TXR3_MACRV ck: 2020 len: 29 ! P61232 macrothele raveni (spider). raventox

<X{0,6}CX{5,6}CX{4}(E,Q)CCX{3,4}CX{3,6}CX{0,9}>
xCx{6}Cx{4}(E)CCx{4}Cx{4}Cx{3}
1: GCKLTFWKCKNKKECCGWNACALGICMPR

Databases searched:
UNIPROT, Release 7.2, Released on 7Mar2006, Formatted on 7Mar2006

Total finds: 9
Total length: 925,015,592

Total sequences: 2,849,598
CPU time: 09:45.18

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!!AA_SEQUENCE 1.0
ID   ADO1_AGRDO     STANDARD;      PRT;    35 AA.
AC   P58608;
DT   23-JAN-2002, integrated into UniProtKB/Swiss-Prot.
DT   23-JAN-2002, sequence version 1.
DT   07-FEB-2006, entry version 30.
DE   Toxin Ado1.
OS   Agriosphodrus dohrni (Assassin bug).
OC   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC   Neoptera; Paraneoptera; Hemiptera; Euhemiptera; Heteroptera;
OC   Panheteroptera; Cimicomorpha; Reduviidae; Harpactorinae;
OC   Agriosphodrus.
OX   NCBI_TaxID=184613;
RN   [1]
RP   PROTEIN SEQUENCE, AND MASS SPECTROMETRY.
RC   TISSUE=Saliva;
RX   MEDLINE=21316029; PubMed=11423127; DOI=10.1016/S0014-5793(01)02558-3;
RA   Corzo G., Adachi-Akahane S., Nagao T., Kusui Y., Nakajima T.;
RT   "Novel peptides from assassin bugs (Hemiptera: Reduviidae): isolation,
RT   chemical and biological characterization.";
RL   FEBS Lett. 499:256-261(2001).
RN   [2]
RP   STRUCTURE BY NMR, AND FUNCTION.
RX   PubMed=14696181; DOI=10.1002/prot.10513;
RA   Bernard C., Corzo G., Adachi-Akahane S., Foures G., Kanemaru K.,
RA   Furukawa Y., Nakajima T., Darbon H.;
RT   "Solution structure of ADO1, a toxin extracted from the saliva of the
RT   assassin bug, Agriosphodrus dohrni.";
RL   Proteins 54:195-205(2004).
CC   -!- FUNCTION: Binds reversibly and blocks P/Q-type voltage-gated
CC       calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Produced by the venomous saliva.
CC   -!- MASS SPECTROMETRY: MW=3781.3; METHOD=MALDI; RANGE=1-35;
CC       NOTE=Ref.1.
CC   -!- SIMILARITY: Belongs to the assassin bug toxin family.
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
DR   PDB; 1LMR; NMR; A=1-35.
DR   InterPro; IPR012325; Ass_bug_toxin.
DR   Pfam; PF08117; Toxin_30; 1.
DR   PROSITE; PS60010; ASSASSIN_BUG_TOXIN; 1.
KW   3D-structure; Calcium channel inhibitor; Direct protein sequencing;
KW   Ionic channel inhibitor; Neurotoxin; Toxin.
FT   PEPTIDE        1     35       Toxin Ado1.
FT                                 /FTId=PRO_0000044889.
FT   DISULFID       5     20
FT   DISULFID      12     25
FT   DISULFID      19     32
FT   STRAND         3      3
FT   TURN           8      9
FT   STRAND        13     14
FT   TURN          21     22
FT   STRAND        23     26
FT   TURN          27     30
FT   STRAND        31     34
SQ   SEQUENCE   35 AA;  3787 MW;  3E83D94C6D614E88 CRC64;

ADO1_AGRDO  Length: 35  February 16, 2007 16:48  Type: P  Check: 7710  ..

       1  ADDDCLPRGS KCLGENKQCC KGTTCMFYAN RCVGV

!!AA_SEQUENCE 1.0
ID   CX7A_CONTE     STANDARD;      PRT;    27 AA.
AC   P24160;
DT   01-MAR-1992, integrated into UniProtKB/Swiss-Prot.
DT   30-MAY-2000, sequence version 2.
DT   07-FEB-2006, entry version 41.
DE   Conotoxin TxVIIA (TxIIA).
OS   Conus textile (Cloth-of-gold cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC   Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6494;
RN   [1]
RP   PROTEIN SEQUENCE.
RC   STRAIN=Neovicarius; TISSUE=Venom;
RX   MEDLINE=92104183; PubMed=1761058;
RA   Fainzilber M., Gordon D., Hasson A., Spira M.E., Zlotkin E.;
RT   "Mollusc-specific toxins from the venom of Conus textile
RT   neovicarius.";
RL   Eur. J. Biochem. 202:589-595(1991).
RN   [2]
RP   SEQUENCE REVISION TO 1 AND C-TERMINUS, AND MASS SPECTROMETRY.
RX   MEDLINE=97022130; PubMed=8868490;
RA   Nakamura T., Yu Z., Fainzilber M., Burlingame A.L.;
RT   "Mass spectrometric-based revision of the structure of a cysteine-rich
RT   peptide toxin with gamma-carboxyglutamic acid, TxVIIA, from the sea
RT   snail, Conus textile.";
RL   Protein Sci. 5:524-530(1996).
CC   -!- FUNCTION: Potent neurotoxin. May exert its effects at the level of
CC       the neuromuscular junction.
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- PTM: Contains three disulfide bonds.
CC   -!- MASS SPECTROMETRY: MW=3088.9; METHOD=Electrospray; RANGE=1-27;
CC       NOTE=Ref.2.
CC   -!- SIMILARITY: Belongs to the conotoxin O superfamily.
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
DR   PIR; A58175; A58175.
KW   Amidation; Direct protein sequencing; Gamma-carboxyglutamic acid;
KW   Neurotoxin; Toxin.
FT   PEPTIDE        1     27       Conotoxin TxVIIA.
FT                                 /FTId=PRO_0000044485.
FT   MOD_RES        9      9       4-carboxyglutamate.
FT   MOD_RES       13     13       4-carboxyglutamate.
FT   MOD_RES       27     27       Phenylalanine amide.
SQ   SEQUENCE   27 AA;  3008 MW;  D7A49781300FE1E7 CRC64;

CX7A_CONTE  Length: 27  February 16, 2007 16:49  Type: P  Check: 8971  ..

       1 CGGYSTYCEV DSECDSDNCV RSYCTLF

!!AA_SEQUENCE 1.0
ID   CXG6_CONTE     STANDARD;      PRT;    31 AA.
AC   P58922;
DT   26-JUL-2002, integrated into UniProtKB/Swiss-Prot.
DT   26-JUL-2002, sequence version 1.
DT   07-FEB-2006, entry version 24.
DE   Conotoxin Gla(1)-TxVI.
OS   Conus textile (Cloth-of-gold cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC   Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=6494;
RN   [1]
RP   PROTEIN SEQUENCE, AND MASS SPECTROMETRY.
RC   TISSUE=Venom;
RX   MEDLINE=20146306; PubMed=10679974;
RX   DOI=10.1002/(SICI)1096-9888(200002)35:2<145::AID-JMS922>3.0.CO;2-I;
RA   Kalume D.E., Stenflo J.P., Czerwiec E., Hambe B., Furie B.C.,
RA   Furie B., Roepstorff P.;
RT   "Structure determination of two conotoxins from Conus textile by a
RT   combination of matrix-assisted laser desorption/ionization time-of-
RT   flight and electrospray ionization mass spectrometry and biochemical
RT   methods.";
RL   J. Mass Spectrom. 35:145-156(2000).
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- MASS SPECTROMETRY: MW=3672.78; METHOD=MALDI; RANGE=1-31;
CC       NOTE=Ref.1.
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CC   -!- SIMILARITY: Belongs to the conotoxin O superfamily.
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
KW   Bromination; Direct protein sequencing; Gamma-carboxyglutamic acid;
KW   Hydroxylation; Toxin.
FT   PEPTIDE       1     31       Conotoxin Gla(1)-TxVI.
FT                                /FTId=PRO_0000044879.
FT   MOD_RES       3      3       6'-bromotryptophan.
FT   MOD_RES       5      5       4-carboxyglutamate.
FT   MOD_RES      16     16       4-hydroxyproline.
FT   MOD_RES      18     18       4-carboxyglutamate.
FT   MOD_RES      22     22       4-carboxyglutamate.
FT   MOD_RES      25     25       4-carboxyglutamate.
FT   MOD_RES      31     31       6'-bromotryptophan.
FT   DISULFID      6     20       By similarity.
FT   DISULFID     13     24       By similarity.
FT   DISULFID     19     28       By similarity.
SQ   SEQUENCE   31 AA;  3334 MW;  01E836DAB1D04580 CRC64;

CXG6_CONTE  Length: 31  February 16, 2007 16:49  Type: P  Check: 6937  ..

        1  GMWGECKDGL TTCLAPSECC SEDCEGSCTM W

4
!!AA_SEQUENCE 1.0
ID   CXG7A_CONPE    STANDARD;      PRT;    32 AA.
AC   P56711;
DT   30-MAY-2000, integrated into UniProtKB/Swiss-Prot.
DT   30-MAY-2000, sequence version 1.
DT   07-FEB-2006, entry version 32.
DE   Gamma-conotoxin PnVIIA.
OS   Conus pennaceus (Feathered cone).
OC   Eukaryota; Metazoa; Mollusca; Gastropoda; Orthogastropoda;
OC   Apogastropoda; Caenogastropoda; Sorbeoconcha; Hypsogastropoda;
OC   Neogastropoda; Conoidea; Conidae; Conus.
OX   NCBI_TaxID=37335;
RN   [1]
RP   PROTEIN SEQUENCE, AND MASS SPECTROMETRY.
RC   TISSUE=Venom;
RX   MEDLINE=98145210; PubMed=9484216; DOI=10.1021/bi971571f;
RA   Fainzilber M., Nakamura T., Lodder J.C., Zlotkin E., Kits K.S.,
RA   Burlingame A.L.;
RT   "Gamma-conotoxin-PnVIIA, a gamma-carboxyglutamate-containing peptide
RT   agonist of neuronal pacemaker cation currents.";
RL   Biochemistry 37:1470-1477(1998).
CC   -!- FUNCTION: May act on a voltage-gated nonspecific cation channel.
CC       Triggers depolarization and firing of action potential bursts in
CC       the caudodorsal neurons of lymnaea. This effect is due to
CC       activation or enhancement of a slow inward cation current that may
CC       underly endogenous bursting activity of these neurons.
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom duct.
CC   -!- PTM: Contains three disulfide bonds.
CC   -!- MASS SPECTROMETRY: MW=3718.4; METHOD=Electrospray; RANGE=1-32;
CC       NOTE=Ref.1.
CC   -!- SIMILARITY: Belongs to the conotoxin O superfamily.
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
KW   Direct protein sequencing; Gamma-carboxyglutamic acid; Hydroxylation;
KW   Neurotoxin; Toxin.
FT   PEPTIDE       1     32       Gamma-conotoxin PnVIIA.
FT                                /FTId=PRO_0000044877.
FT   MOD_RES      14     14       4-carboxyglutamate.
FT   MOD_RES      26     26       4-carboxyglutamate.
FT   MOD_RES      31     31       4-hydroxyproline.
SQ   SEQUENCE   32 AA;  3621 MW;  78CCFC5E02FEB59C CRC64;

CXG7A_CONPE  Length: 32  February 16, 2007 16:49  Type: P  Check: 385  ..

        1  DCTSWFGRCT VNSECCSNSC DQTYCELYAF PS

5
!!AA_SEQUENCE 1.0
ID   IOB1_ISYOB     STANDARD;      PRT;    36 AA.
AC   P58609;
DT   23-JAN-2002, integrated into UniProtKB/Swiss-Prot.
DT   23-JAN-2002, sequence version 1.
DT   07-FEB-2006, entry version 25.
DE   Toxin Iob1.
OS   Isyndus obscurus (Assassin bug).
OC   Eukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;
OC   Neoptera; Paraneoptera; Hemiptera; Euhemiptera; Heteroptera;
OC   Panheteroptera; Cimicomorpha; Reduviidae; Harpactorinae; Isyndus.
OX   NCBI_TaxID=184615;
RN   [1]
RP   PROTEIN SEQUENCE, AND MASS SPECTROMETRY.
RC   TISSUE=Saliva;
RX   MEDLINE=21316029; PubMed=11423127; DOI=10.1016/S0014-5793(01)02558-3;
RA   Corzo G., Adachi-Akahane S., Nagao T., Kusui Y., Nakajima T.;
RT   "Novel peptides from assassin bugs (Hemiptera: Reduviidae): isolation,
RT   chemical and biological characterization.";
RL   FEBS Lett. 499:256-261(2001).
CC   -!- FUNCTION: Binds reversibly and blocks N-type voltage-gated calcium
CC       channels (By similarity).
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Produced by the venomous saliva.
CC   -!- MASS SPECTROMETRY: MW=3938.5; METHOD=MALDI; RANGE=1-36;
CC       NOTE=Ref.1.
CC   -!- SIMILARITY: Belongs to the assassin bug toxin family.
CC   ---------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ---------------------------------------------------------------------
DR   InterPro; IPR012325; Ass_bug_toxin.
DR   Pfam; PF08117; Toxin_30; 1.
DR   PROSITE; PS60010; ASSASSIN_BUG_TOXIN; 1.
KW   Calcium channel inhibitor; Direct protein sequencing;
KW   Ionic channel inhibitor; Neurotoxin; Toxin.
FT   PEPTIDE       1     36       Toxin Iob1.
FT                                /FTId=PRO_0000044890.
FT   DISULFID      6     21       By similarity.
FT   DISULFID     13     26       By similarity.
FT   DISULFID     20     33       By similarity.
SQ   SEQUENCE   36 AA;  3945 MW;  2DB8C392FA876F3E CRC64;

IOB1_ISYOB  Length: 36  February 16, 2007 16:49  Type: P  Check: 9883  ..

        1  GADEDCLPRG SKCLGENKQC CEKTTCMFYA NRCVGI

6
!!AA_SEQUENCE 1.0
ID   TXHA1_SELHA    STANDARD;      PRT;    33 AA.
AC   P83591;
DT   27-JUN-2003, integrated into UniProtKB/Swiss-Prot.
DT   01-JUN-2003, sequence version 1.
DT   07-MAR-2006, entry version 24.
DE   Hainantoxin-1 (Hainantoxin-I) (HnTx-I).
OS   Selenocosmia hainana (Chinese bird spider).
OC   Eukaryota; Metazoa; Arthropoda; Chelicerata; Arachnida; Araneae;
OC   Mygalomorphae; Theraphosidae; Ornithoctonus.
OX   NCBI_TaxID=209901;
RN   [1]
RP   PROTEIN SEQUENCE.
RC   TISSUE=Venom;
RX   PubMed=12727268; DOI=10.1016/S0041-0101(02)00280-5;
RA   Xiao Y.-C., Liang S.-P.;
RT   "Purification and characterization of Hainantoxin-V, a tetrodotoxin-
RT   sensitive sodium channel inhibitor from the venom of the spider
RT   Selenocosmia hainana.";
RL   Toxicon 41:643-650(2003).
RN   [2]
RP   SEQUENCE REVISION TO 30-32, FUNCTION, SUBUNIT, SUBCELLULAR LOCATION,
RP   TISSUE SPECIFICITY, MASS SPECTROMETRY, DISULFIDE BONDS, AMIDATION,
RP   IC(50), AND STRUCTURE BY NMR.
RC   TISSUE=Venom;
```

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RX   PubMed=14675784; DOI=10.1016/S0014-5793(03)01303-6;
RA   Li D.-L., Xiao Y.-C., Hu W.-J., Xie J.-Y., Bosmans F., Tytgat J.,
RA   Liang S.-P.;
RT   "Function and solution structure of hainantoxin-I, a novel insect
RT   sodium channel inhibitor from the Chinese bird spider Selenocosmia
RT   hainana.";
RL   FEBS Lett. 555:616-622(2003).
CC   -!- FUNCTION: Is a depressant toxin. Binds and blocks insect sodium
CC       channels without altering the activation or inactivation kinetics.
CC   -!- SUBUNIT: Monomer.
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom gland.
CC   -!- MASS SPECTROMETRY: MW=3608.02; METHOD=MALDI; RANGE=1-33;
CC       NOTE=Ref.2.
CC   -!- MISCELLANEOUS: IC(50) is 68 +/- 6 uM on rNa1.2/beta1 channel.
CC   -!- MISCELLANEOUS: IC(50) is 4.3 +/- 0.3 uM on insect sodium channel
CC       para/tipE.
CC   -!- SIMILARITY: Belongs to the huwentoxin-1 family.
CC   ----------------------------------------------------------------------
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CC   ----------------------------------------------------------------------
DR   PDB; 1NIX; NMR; A=1-33.
DR   GO; GO:0005576; C:extracellular region; NAS.
DR   GO; GO:0019871; F:sodium channel inhibitor activity; NAS.
DR   GO; GO:0006952; P:defense response; NAS.
DR   GO; GO:0009405; P:pathogenesis; NAS.
DR   InterPro; IPR013140; Huwentoxin-1.
DR   InterPro; IPR011696; Toxin_12.
DR   Pfam; PF07740; Toxin_12; 1.
DR   PROSITE; PS60021; HWTX_1; 1.
KW   3D-structure; Amidation; Direct protein sequencing;
KW   Ionic channel inhibitor; Neurotoxin; Sodium channel inhibitor; Toxin.
FT   PEPTIDE       1     33       Hainantoxin-1.
FT                                /FTId=PRO_0000045004.
FT   MOD_RES      33     33       Leucine amide.
FT   DISULFID      2     17
FT   DISULFID      9     22
FT   DISULFID     16     29
FT   STRAND        3      3
FT   STRAND        5      6
FT   STRAND        8      8
FT   TURN         11     14
FT   STRAND       16     16
FT   TURN         18     19
FT   STRAND       20     22
FT   STRAND       24     31
SQ   SEQUENCE   33 AA;  3614 MW;  24E8E5053A41E377 CRC64;

TXHA1_SELHA  Length: 33  February 16, 2007 16:49  Type: P  Check: 2511  ..

       1  ECKGFGKSCV PGKNECCSGY ACNSRDKWCK VLL

!!AA_SEQUENCE 1.0
ID   TXHA3_SELHA    STANDARD;      PRT;    33 AA.
AC   P83464;
DT   01-NOV-2002, integrated into UniProtKB/Swiss-Prot.
DT   01-NOV-2002, sequence version 1.
DT   07-MAR-2006, entry version 22.
DE   Hainantoxin-3 (Hainantoxin-III) (HnTx-III).
OS   Selenocosmia hainana (Chinese bird spider).
OC   Eukaryota; Metazoa; Arthropoda; Chelicerata; Arachnida; Araneae;
OC   Mygalomorphae; Theraphosidae; Ornithoctonus.
OX   NCBI_TaxID=209901;
RN   [1]
RP   PROTEIN SEQUENCE, FUNCTION, SUBUNIT, SUBCELLULAR LOCATION, TISSUE
RP   SPECIFICITY, MASS SPECTROMETRY, DISULFIDE BONDS, AMIDATION, AND
RP   STRUCTURE BY NMR.
RA   Zhu Q., Liu Z.-H., Liang S.-P.;
RT   "Function and solution structure of hainantoxin-III, a potent neuronal
RT   TTX-sensitive sodium channel antagonist from Chinese bird spider
RT   Selenocosmia hainana.";
RL   Submitted (OCT-2002) to Swiss-Prot.
CC   -!- FUNCTION: Lethal neurotoxin. Acts selectively on terodotoxin-
CC       sensitive voltage-gated sodium channels.
CC   -!- SUBUNIT: Monomer.
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom gland.
CC   -!- MASS SPECTROMETRY: MW=3607.6; METHOD=Electrospray; RANGE=1-33;
CC       NOTE=Ref.1.
CC   -!- SIMILARITY: Belongs to the huwentoxin-1 family.
CC   ----------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ----------------------------------------------------------------------
DR   HSSP; P56676; 1QK6.
DR   GO; GO:0005576; C:extracellular region; NAS.
DR   GO; GO:0019871; F:sodium channel inhibitor activity; NAS.
DR   GO; GO:0009405; P:pathogenesis; NAS.
DR   GO; GO:0007268; P:synaptic transmission; NAS.
DR   InterPro; IPR013140; Huwentoxin-1.
DR   InterPro; IPR011696; Toxin_12.
DR   Pfam; PF07740; Toxin_12; 1.
DR   PROSITE; PS60021; HWTX_1; 1.
KW   Amidation; Direct protein sequencing; Ionic channel inhibitor;
KW   Neurotoxin; Presynaptic neurotoxin; Sodium channel inhibitor; Toxin.
FT   PEPTIDE       1     33       Hainantoxin-3.
FT                                /FTId=PRO_0000045005.
FT   MOD_RES      33     33       Leucine amide.
FT   DISULFID      2     17
FT   DISULFID      9     22
FT   DISULFID     16     29
SQ   SEQUENCE   33 AA;  3615 MW;  192DB5BCC541E811 CRC64;

TXHA3_SELHA  Length: 33  February 16, 2007 16:50  Type: P  Check: 2983  ..

       1  GCKGFGDSCT PGKNECCPNY ACSSKHKWCK VYL

!!AA_SEQUENCE 1.0
ID   TXHP1_HETVE    STANDARD;      PRT;    33 AA.
AC   P58425;
DT   05-DEC-2001, integrated into UniProtKB/Swiss-Prot.
DT   05-DEC-2001, sequence version 1.
DT   07-FEB-2006, entry version 23.
DE   Heteropodatoxin-1 (HpTX1) (Toxin AU3/KJ5).
OS   Heteropoda venatoria (Giant crab spider).
OC   Eukaryota; Metazoa; Arthropoda; Chelicerata; Arachnida; Araneae;
OC   Araneomorphae; Entelegynae; Dionycha; Sparassidae; Heteropoda.
OX   NCBI_TaxID=152925;
RN   [1]
RP   PROTEIN SEQUENCE, CHARACTERIZATION, AND MASS SPECTROMETRY.
RC   TISSUE=Venom;
RX   MEDLINE=97211638; PubMed=9058605;
RA   Sanguinetti M.C., Johnson J.H., Hammerland L.G., Kelbaugh P.R.,
RA   Volkmann R.A., Saccomano N.A., Mueller A.L.;
RT   "Heteropodatoxins: peptides isolated from spider venom that block
RT   Kv4.2 potassium channels.";
RL   Mol. Pharmacol. 51:491-498(1997).
RN   [2]
RP   PROTEIN SEQUENCE, FUNCTION, DISULFIDE BONDS, AND MASS SPECTROMETRY.
RC   TISSUE=Venom;
RA   Kelbaugh P.R., Saccomano N.A., Volkmann R.A.;
RT   "Calcium channel blocking polypeptides from Heteropoda venatoria.";
RL   Patent number US5627154, 06-MAY-1997.
CC   -!- FUNCTION: Inhibitor of voltage-gated potassium channels. Blocks
CC       potassium currents by binding to Kv4.2 potassium channels. Also
CC       blocks calcium channels.
CC   -!- SUBCELLULAR LOCATION: Secreted protein.
CC   -!- TISSUE SPECIFICITY: Expressed by the venom gland.
CC   -!- PTM: Contains three disulfide bonds.
CC   -!- MASS SPECTROMETRY: MW=3910.57; METHOD=Electrospray; RANGE=1-33;
CC       NOTE=Ref.1.
CC   -!- MASS SPECTROMETRY: MW=3909.94; METHOD=Electrospray; RANGE=1-33;
CC       NOTE=Ref.2.
CC   -!- SIMILARITY: Belongs to the spider potassium channel inhibitory
CC       toxin family.
```

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CC   ----------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ----------------------------------------------------------------------
DR   InterPro; IPR011696; Toxin_12.
DR   Pfam; PF07740; Toxin_12; 1.
KW   Amidation; Calcium channel inhibitor; Direct protein sequencing;
KW   Ionic channel inhibitor; Neurotoxin; Potassium channel inhibitor;
KW   Toxin.
FT   PEPTIDE       1     33       Heteropodatoxin-1.
FT                                /FTId=PRO_0000045019.
FT   MOD_RES      33     33       Tryptophan amide.
FT   DISULFID      2     17       By similarity.
FT   DISULFID      9     22       By similarity.
FT   DISULFID     16     27       By similarity.
SQ   SEQUENCE   33 AA;  3917 MW;  0CBB91832004D0EB CRC64;

TXHP1_HETVE  Length: 33  February 16, 2007 16:50  Type: P  Check: 3006  ..

       1  DCGTIWHYCG TDQSECCEGW KCSRQLCKYV IDW

(9)
!!AA_SEQUENCE 1.0
ID   TXR3_MACRV     STANDARD;      PRT;    29 AA.
AC   P61232;
DT   10-MAY-2004, integrated into UniProtKB/Swiss-Prot.
DT   10-MAY-2004, sequence version 1.
DT   07-FEB-2006, entry version 13.
DE   Raventoxin-3 (Raventoxin III).
OS   Macrothele raveni (Spider).
OC   Eukaryota; Metazoa; Arthropoda; Chelicerata; Arachnida; Araneae;
OC   Mygalomorphae; Hexathelidae; Macrothele.
OX   NCBI_TaxID=269627;
RN   [1]
RP   PROTEIN SEQUENCE, AND MASS SPECTROMETRY.
RC   TISSUE=Venom;
RX   PubMed=12727269; DOI=10.1016/S0041-0101(02)00361-6;
RA   Zeng X.-Z., Xiao Q.-B., Liang S.-P.;
RT   "Purification and characterization of raventoxin-I and raventoxin-III,
RT   two neurotoxic peptides from the venom of the spider Macrothele
RT   raveni.";
RL   Toxicon 41:651-656(2003).
CC   -!- FUNCTION: This toxin blocks the neuromuscular transmission. This
CC       toxin is active only against mammals.
CC   -!- SUBCELLULAR LOCATION: Secreted protein (By similarity).
CC   -!- TISSUE SPECIFICITY: Expressed by the venom gland.
CC   -!- MASS SPECTROMETRY: MW=3287.58; METHOD=MALDI; RANGE=1-29;
CC       NOTE=Ref.1.
CC   ----------------------------------------------------------------------
CC   Copyrighted by the UniProt Consortium, see http://www.uniprot.org/terms
CC   Distributed under the Creative Commons Attribution-NoDerivs License
CC   ----------------------------------------------------------------------
DR   InterPro; IPR012628; Toxin_23.
DR   Pfam; PF08093; Toxin_23; 1.
KW   Direct protein sequencing; Ionic channel inhibitor; Neurotoxin;
KW   Sodium channel inhibitor; Toxin.
FT   PEPTIDE       1     29       Raventoxin-3.
FT                                /FTId=PRO_0000044557.
FT   DISULFID      2     16       By similarity.
FT   DISULFID      9     21       By similarity.
FT   DISULFID     15     26       By similarity.
SQ   SEQUENCE   29 AA;  3293 MW;  9143A6E21E4D09FE CRC64;

TXR3_MACRV  Length: 29  February 16, 2007 16:50  Type: P  Check: 2020  ..

       1  GCKLTFWKCK NKKECCGWNA CALGICMPR
```

DETAILED ACTION

1. Claims 1-20 are pending.

2. Applicant's election of Group I, claims 1-6, in the reply filed on 12/05/2006 is acknowledged.

3. Claims 7-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention.

4. Claims 1-6 are currently under examination as they read upon a substantially pure conopeptide having the general formula of SEQ ID NO:1.

5. Applicant's IDS filed on 08/26/2003 is acknowledged.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, because the specification while being enabled for the substantially pure conopeptides PnVIIA (SEQ

ID NO: 6), Tx6.4 (SEQ ID NO: 7), Tx6.9 (SEQ ID NO: 8), Tx6.6 (SEQ ID NO:10), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15), does not reasonably provide enablement for a substantially pure conopeptide or pharmaceutically acceptable salt thereof, said conopeptide having the general formula I: Xaa_1-Cys-Xaa_2-Cys-Xaa_3-Xaa_4-Cys-Cys-Xaa_5-Cys-Xaa_6-Cys-Xaa_7 (SEQ ID NO:1), wherein Xaa_1 **is des-Xaa_1 or a peptide having 1-6 amino acids**; Xaa_2 is **a peptide having 5-6 amino acids;** Xaa_3 is **a peptide having 4 amino acids**; Xaa_4 is Glu, γ-carboxyglutamic acid (γ - Glu) or Gln; Xaa_5 is **a peptide having 3-4 amino acids**; Xaa_6 is **a peptide having 3-6 amino acids**; and Xaa_7 **is des-Xaa_7 or a peptide having 2-9 amino acids,** with the proviso that when Xaa_1 is des-Xaa_1, then Xaa_5 is not the tripeptide Ser-Asp-Asn of claim 1; wherein Xaa_4 is γ - Glu of claim 2; wherein Xaa_1 is des-Xaa_1 of claim 3; wherein Xaa_1 is **a peptide having 1-6 amino acids** of claim 4; wherein Xaa_7 is des-Xaa_7 of claim 5 and wherein Xaa_7 is **a peptide having 2-9 amino acids**.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized In re Wands (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of

sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention. The specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without an undue amount of experimentation.

The specification discloses substantially pure conopeptides PnVIIA (SEQ ID NO: 6), Tx6.4 (SEQ ID NO: 7), Tx6.9 (SEQ ID NO: 8), J010 (SEQ ID NO:9), Tx6.6 (SEQ ID NO:10), Tx6.5 (SEQ ID NO:11), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15) for use as agonists of neuronal pacemaker cation channels and to modulate slow inward cation channels in vertebrates.

There is insufficient guidance in the working examples to show that conopeptides of the formula of SEQ ID NO:1 can be used as agonists of neuronal pacemaker cation channels and to modulate slow inward cation channels in vertebrates.

McIntosh et al. (PTO-892, Reference U) teaches that biological activity of peptide toxins from cone snails is dependent upon highly conserved γ-carboxyglutamate residues within the peptide (In particular, page 14343, first paragraph). Carboxyglutamate residues appear to function as calcium ligands within proteins and the neurological action of the toxin depends upon calcium binding (In particular, page 14346, first and second full paragraphs). Chandler et al. (PTO-892, Reference V, abstract in particular) teaches that polypeptides from cone snail venom have

antagonistic properties to N-methyl-D-aspartate (NMDA) that is dependent upon highly conserved γ-carboxyglutamate residues within the peptide.

Therefore, the functional polypeptide species of conopeptides of the formula of SEQ ID NO:1 are highly unpredictable. The large number of species represented by the formula of SEQ ID NO:1 encompass many inoperative species as evidence by the state of the art and the importance of particular residues within the conopeptide that retain neurostimulatory activity.

In addition, the specification gives no guidance as to what amino acids and/ or peptides may be substituted for the variable Xaa_1 through Xaa_7 positions that will still reatin the desired functional characteristics. Further, the specification does not detail whether the amino acids may be only be naturally occurring or whether they may also be modified and retain function as agonists of neuronal pacemaker cation channels that can modulate the slow inward cation channels in vertebrates. The scope of enablement set forth in the specification is not commensurate in scope with the claims.

Reasonable correlation must exist between the scope of the claims and scope of the enablement set forth. In view on the quantity of experimentation necessary the limited working examples, the nature of the invention, the state of the prior art, the unpredictability of the art and the breadth of the claims, it would take undue trials and errors to practice the claimed invention.

9. Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Applicant is in possession of: the substantially pure conopeptides PnVIIA (SEQ ID NO: 6), Tx6.4 (SEQ ID NO: 7), Tx6.9 (SEQ ID NO: 8), Tx6.6 (SEQ ID NO:10), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15).

Applicant is not in possession of a substantially pure conopeptide or pharmaceutically acceptable salt thereof, said conopeptide having the general formula I: Xaa_1-Cys-Xaa_2-Cys-Xaa_3-Xaa_4-Cys-Cys-Xaa_5-Cys-Xaa_6-Cys-Xaa_7 (SEQ ID NO:1), wherein Xaa_1 **is des-Xaa_1 or a peptide having 1-6 amino acids**; Xaa_2 is **a peptide having 5-6 amino acids;** Xaa_3 is **a peptide having 4 amino acids**; Xaa_4 is Glu, γ-carboxyglutamic acid (γ - Glu) or Gln; Xaa_5 is **a peptide having 3-4 amino acids**; Xaa_6 is **a peptide having 3-6 amino acids**; and Xaa_7 **is des-Xaa_7 or a peptide having 2-9 amino acids,** with the proviso that when Xaa_1 is des-Xaa_1, then Xaa_5 is not the tripeptide Ser-Asp-Asn of claim 1; wherein Xaa_4 is γ - Glu of claim 2; wherein Xaa_1 is des-Xaa_1 of claim 3; wherein Xaa_1 is **a peptide having 1-6 amino acids** of claim 4; wherein Xaa_7 is des-Xaa_7 of claim 5 and wherein Xaa_7 is **a peptide having 2-9 amino acids**.

Applicant has disclosed only conopeptides PnVIIA (SEQ ID NO: 6), Tx6.4 (SEQ ID NO: 7), Tx6.9 (SEQ ID NO: 8), Tx6.6 (SEQ ID NO:10), Gm6.7 (SEQ ID NO: 12), Mr6.1 (SEQ ID NO: 13), Mr6.2 (SEQ ID NO:14) and Mr6.3 (SEQ ID NO:15); therefore, the skilled artisan cannot envision all the contemplated polypeptide possibilities recited in the instant claims. Consequently, conception cannot be achieved until a representative description of the structural and functional properties of the claimed invention has occurred, regardless of the complexity or simplicity of the method. Adequate written description requires more than a mere statement that it is part of the invention. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC1993). The Guidelines for the Examination of Patent Application Under the 35 U.S.C.112, ¶ 1"Written Description" Requirement make clear that the written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species disclosure of relevant, identifying characteristics, i.e., structure or other physical and or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the genus (Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 20001, see especially page 1106 3rd column).

Vas-Cath Inc. v. Mahurkar, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons

of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). Consequently, Applicant was not in possession of the instant claimed invention. See University of California v. Eli Lilly and Co. 43 USPQ2d 1398.

Applicant is directed to the final Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Eldridge et al. (IDS filed on 08/26/2003).

Eldridge et al. teaches the peptide A(Xaa_1 peptide of 1-6 amino acids) -C-AETGAV(Xaa_2 peptide of 5-6 amino acids)-C-VHND(Xaa_3 peptide of 4 amino acids)-E(Glu)-C-C-SGA(Xaa_5 peptide of 3-4 amino acids)-C-SPIFNY(Xaa_6 peptide having 3-6 amino acids)-C-LPQ(Xaa_7 peptide having 2-9 amino acids) in Figure 2. In the peptide,

Xaa_1 is a peptide having 1-6 amino acids as recited in claim 4 and Xaa_7 is a peptide having 2-9 amino acids as recited in claim 6.

The reference teachings anticipate the claimed invention.

12. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 95/01436 (PTO-892, Reference N, SEQ ID NO:10 on page 46).

WO 95/01436 teaches the peptide (Xaa_1 is des-Xaa_1) -C-KTYSKY (Xaa_2 peptide of 5-6 amino acids)-C-XADS(Xaa_3 peptide of 4 amino acids)-X(Glu, γ - Glu or Gln)-C-C-TXQ(Xaa_5 peptide of 3-4 amino acids)-C-VRSY(Xaa_6 peptide having 3-6 amino acids)-C-TLF(Xaa_7 peptide having 2-9 amino acids) in SEQ ID NO:10 on page 46 and in claim 18. In the peptide, Xaa_1 is des-Xaa_1 as recited in claim 3 and Xaa_5 is not Ser-Asp-Asn as recited in claim 1. Xaa_4 is any amino acid including Glu, γ - Glu or Gln as recited in claim 2. Xaa_7 is a peptide having 2-9 amino acids as recited in claim 6

The reference teachings anticipate the claimed invention.

13. Claims 1, 3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 94/10196 (PTO-892, Reference W, SEQ ID NO:3).

WO 94/10196 teaches the peptide (Xaa_1 is des-Xaa_1) -C-AEFQSK (Xaa_2 peptide of 5-6 amino acids)-C-KKDS(Xaa_3 peptide of 4 amino acids)-E(Glu)-C-C-GTLE(Xaa_5

peptide of 3-4 amino acids)-C-SPTWKW(Xaa_6 peptide having 3-6 amino acids)-C-VYPSPF(Xaa_7 peptide having 2-9 amino acids) in SEQ ID NO:3 on page 19 and in claim 1 on page 24. In the peptide, Xaa_1 is des-Xaa_1 as recited in claim 3 and Xaa_5 is not Ser-Asp-Asn as recited in claim 1. Xaa_7 is a peptide having 2-9 amino acids as recited in claim 7.

The reference teachings anticipate the claimed invention.

14. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Ahrens et al. (PTO-892, Reference X).

Ahrens et al. teaches the peptide MGVKSALFIMAVFAAANV-QYVLAA(Xaa_1 peptide of 1-6 amino acids) -C-AETGAV(Xaa_2 peptide of 5-6 amino acids)-C-VHSD(Xaa_3 peptide of 4 amino acids)-E(Glu)-C-C-SGA(Xaa_5 peptide of 3-4 amino acids)-C-SPVFNY(Xaa_6 peptide having 3-6 amino acids)-C-(Xaa_7 is des- Xaa_7) in Figure 4 on page 389 sequence 'OpCtl-1'. In the peptide, Xaa_1 is a peptide having 1-6 amino acids as recited in claim 4 and Xaa_7 is a peptide having 2-9 amino acids as recited in claim 6. The conopeptide of Ahrens et al. is prior art because the term "having the general formula" is open language that includes the addition of other amino acids to the N and/or C terminus.

The reference teachings anticipate the claimed invention.

15. Claims 1 and 4-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Liang et al. (PTO-892, Page 2, Reference U).

Liang et al. teaches the peptide A (Xaa_1 peptide of 1-6 amino acids) -C-KGVFDA (Xaa_2 peptide of 5-6 amino acids)-C-TPGKN(Xaa_3 peptide of 4 amino acids)-E(Glu)-C-C-PNRV(Xaa_5 peptide of 3-4 amino acids)-C-SDKHKW(Xaa_6 peptide having 3-6 amino acids)-C- KWKL(Xaa_7 is a peptide of 2-9 amino acids) in Figure 7 on page 977 sequence 'OpCtl-1'. In the peptide, Xaa_1 is a peptide having 1-6 amino acids as recited in claim 4 and Xaa_7 is a peptide having 2-9 amino acids as recited in claim 6.

The reference teachings anticipate the claimed invention.

16. Claims 1, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ayres et al. (PTO-892, Page 2, Reference V).

Ayres et al. teaches the peptide MQIKTVLLAFAMFAALNA-QHVLAA (Xaa_1 peptide of 1-6 amino acids) -C-AETGAV(Xaa_2 peptide of 5-6 amino acids)-C-VHND(Xaa_3 peptide of 4 amino acids)-E(Glu)-C-C-SGA(Xaa_5 peptide of 3-4 amino acids)-C-SPIFNY(Xaa_6 peptide having 3-6 amino acids)-C-LPQ(Xaa_7 peptide having 2-9 amino acids) in Figure 2. In the peptide, Xaa_1 is a peptide having 1-6 amino acids as recited in claim 4 and Xaa_7 is a peptide having 2-9 amino acids as recited in claim 6. The conopeptide of Ayres et al. is prior art because the term "having the general

formula" is open language that includes the addition of other amino acids to the N and/or C terminus.

The reference teachings anticipate the claimed invention.

17. No claim is allowed.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nora M. Rooney whose telephone number is (571) 272-9937. The examiner can normally be reached Monday through Friday from 8:30 am to 5:00 pm. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Chan can be reached on (571) 272-0841. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 3, 2007

Nora M. Rooney, M.S., J.D.

Patent Examiner

Technology Center 1600

Double patenting ✓

"having"

112

Circular ⊄ rejection →